This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

LANE

MEDICAL LIBRARY

SEAL OF THE LELAND STANFORD JUNIOR UNIVERSITY
1885

LEVI COOPER LANE FUND

LANE MEDICAL LIBRARY
STANFORD UNIVERSITY
MEDICAL CENTER
STANFORD, CALIF. 94305

Fordyce Barker.
1869.

14/–

ON THE

DIAGNOSIS AND TREATMENT

OF

CANCER AND THE TUMOURS

ANALOGOUS TO IT.

ON THE

DIAGNOSIS AND TREATMENT

OF

CANCER AND THE TUMOURS

ANALOGOUS TO IT.

BY

MAURICE HENRY COLLIS, M.B. Univ. Dub.,
F.R.C.S.I.,

SURGEON TO THE MEATH HOSPITAL AND COUNTY DUBLIN INFIRMARY; SOMETIME EXAMINER ON SURGERY
TO THE QUEEN'S UNIVERSITY IN IRELAND, AND MEMBER OF COUNCIL R.C.S.I.; MEMBER OF COUNCIL
OF SURGICAL SOCIETY OF IRELAND; MEMBER OF THE ROYAL DUBLIN SOCIETY,
OF THE PATHOLOGICAL SOCIETY OF DUBLIN, AND OF THE PARISIAN
MEDICAL SOCIETY; CORRESPONDING MEMBER OF THE
SOCIÉTÉ ANATOMIQUE OF PARIS, ETC.

LANE MEDICAL LIBRARY
11717
SAN FRANCISCO

LONDON:
[illegible]

PRINTED BY
J. E. ADLARD, BARTHOLOMEW CLOSE.

L261
C71
1864

In Piam Memoriam

CARISSIMI PATRUI

MAURITII COLLIS,

INCHOATÆ SUÆ IN RE CHIRURGICÂ DOCTRINÆ AUCTORIS

ET HUJUSCE OPERIS INSTIGATORIS:

NECNON

JACOBO PAGET,

REGIÆ SOCIETATIS E SOCIIS
CHIRURGIS REGINÆ VICTORIÆ EXTRA ORDINEM ADSCRIPTO
PRINCIPIS WALLIÆ ORDINARIIS,
ETC. ETC. ETC.

PATHOLOGIÆ HUJUS INFESTISSIMI MORBI,

PROFESSORI INTER OMNES ET NOSTRATES ET PEREGRINOS PRIMARIO,

HOC QUANTULUMCUNQUE OPUS

GRATISSIMI ANIMI DOCUMENTO

D. D. D.

MAURITIUS HENRICUS COLLIS,

AMICITIÆ GRATIIS

ET PERITISSIMI IN HÂC ARTE MAGISTRI

DOCTRINÂ HAUD SEMEL USUS.

PREFACE.

I SEND forth this volume with a painful consciousness that it is far from perfect. That it should not be a complete manual of the subject is partly intentional and partly a necessity. In preparing it for publication, I preferred to give my own views, impressions, and experiences, and to repeat the observations and conclusions of other men, only as I had made them my own by comparison and reflection. So far it is incomplete by intention. On the other hand, the longer and more anxiously I have investigated the subject, the more profound has been my conviction that a man cannot attain more than a small amount of clear knowledge in any department of science, and that he will view his most laborious efforts as falling very far short of attaining the object, however limited, which he has set before him. In this book, in addition to these causes of incompleteness, there is, however, a third and less pardonable one. Now that the last sheets have gone memory, which had let them slip into oblivion at the critical moment, and many startling imperfections come to view too late for correction or erasure.

I can but console myself in the knowledge that the profession possesses already a most complete manual of the subject in Walshe 'On the Nature and Treatment of Cancer,' and a most perfect system of its pathology in Mr. Paget's unrivalled lectures. The effort which I have made to combine in one volume, and to connect for the benefit of the practising surgeon, the results which their labours and those of others have produced on my mind, and such observations on both branches of the subject as I have been able to make, has taught me how extensive the field is, and how impossible it is for any one man to do more than till a very small portion of it.

Yet that there is room and occasion for some such attempt is very evident. Much has been written of late years on the differences of tumours, but little on their analogies to one another; the results of this line of thought are manifest in the pages of some able works on surgery; thus, for example, in one of the latest and most imposing, we meet such a statement as this: "Cancer is unlike all other tumours, in being an infiltration among the natural tissues." The writer of this sentence, in the endeavour to segregate cancer, has ascribed to it alone a character which it has in common with fibroid, fibro-plastic, myeloid, and all secondary tumours. For my own part, I have derived more practical benefit from the time that I discarded the idea of the heteromorphism of cancer, and ceased to look for wide points of difference, anatomical and clinical, between it and other infiltrating growths. Once the analogies which exist between them anatomically became plain to my mind, the recognition of their clinical points of contact and divergence became much plainer also.

I have made few changes in arrangement, and but one in the nomenclature of the various classes of tumour. The changes in arrangement are of little importance, and are necessitated rather by the view-point which I have chosen than by any essential difference, as to matter of fact, from previous writers. The one in nomenclature is a bold, and, perhaps, too daring effort to rescue from misuse a term which has been consecrated by great names and by some few years. In denying to epithelioma the name of cancer I am not singular, but the wish to dissociate from it the term of cancroid, and to affix the latter to tumours which have never had it applied to them, may appear presumptuous on my part. I can only say that I have made the change from a conviction that it is needed. Much error and much confusion arise from the too common practice of massing the statistics of epithelioma with those of cancer; many most valuable have been thus rendered useless. I believe it to be essentially a different disease in its origin; and in its later stages it bears no greater resemblance to cancer than the group of tumours to which I have transferred the name of cancroid, and these agree with cancer in being, *ab initio,* interstitial growths. For the sake of scientific exactness it would be better to keep epithelioma separate from cancer in all recorded observations. This would serve all purposes, and might be done without committing the observer to either view.

I cannot conclude without a word of thanks to many who have given me their cheerful assistance and co-operation in this work. To my colleagues and other professional friends who have allowed me to use their records of cases my thanks are now given, with, in general, due notice in the text where I have availed myself of their labours. To Mr. Porter, especially, for free liberty to use any of his valuable collection of drawings, of which I have availed myself in one or two instances; and to Mr. P. C. Smyly, for placing at my disposal his father's manuscript notes of cases, my thanks are tendered.

To the publisher, for his ready co-operation, and for the admirable manner in which he has done his part; and to the artists, who have laboriously and with untiring patience carried out for me the task of illustration, much gratitude is due Mr. Lewis has seconded my wishes in the matter of the lithographs, in a liberal spirit. Where he had Connolly's admirable drawings as his guide the work was comparatively easy; but in some of the other plates he worked at a disadvantage, yet with a success which speaks for itself. The original drawings of microscopic objects were by an unpractised hand; and both Mr. Oldham in the woodcuts, and Mr. O'Neill in the lithographs, have had much to contend with on this score. The results speak for themselves. Mr. Oldham's woodcuts are so finely executed as to court microscopic inspection.

25, Lower Baggot Street;
November, 1864.

CONTENTS.

CHAPTER I.

VARIOUS FORMS OF CELL-GROWTH.

Meaning of terms cancer, scirrhus, &c., 1. Cancer an infiltrating growth, 2. Morbid cells, 3. Formula for variations of cell-growths, 4. Cells of connective tissue, 5. Lymph-cells, 7. Pus, tubercle, 8. Varying tendencies of lymph-cell in the direction of multiplication or development, 8. Cells of desmoid tumours, 11. Cells of fibro-nucleated tumours, 12. Fibro-plastic cells, 13. Cells of myeloid tumours, 14. Cells of encephaloid, 15. Cells of scirrhus, 16. Death of cells, 16.

CHAPTER II.

GENERAL REMARKS ON THE CLINICAL ASPECT OF TUMOURS.

Walshe's classification of tumours, 20. Paget's, 21. The author's, 24. Order of frequency of cancer, 26. Of other morbid growths, 26. Concurrence of cancer and tubercle in the same patients, 27. Sibley's statistics, 28. Two forms of cancer, acute and chronic, 29. Characteristics of encephaloid, 31. Of scirrhus, 32.

CHAPTER III.

ENCEPHALOID CANCER.

Acute and typical, 35.

CHAPTER IV.

SCIRRHUS.

Its varieties, 77. Physical characters, 78. On section, 80. Microscopic appearances, 81. Symptoms, 82. Progress, 84. Ulceration, 85. Internal deposits, 87. The class of patients it attacks, 88. Axillary, 89. Complication with cysts, 91. In thyroid gland, 96.

CHAPTER V.

ATROPHIC SCIRRHUS.

Its physical characters, 98. Treatment, 100. Cases of it, 101—4.

CHAPTER VI.

LARDACEOUS SCIRRHUS.

Its causes, 105. Characteristics, 104. In the breast, 106. In old persons, 108. In the axillary region, 108. In the gluteal, 109. In the face, 112.

CHAPTER VII.

TREATMENT OF SCIRRHUS.

Preparations for operations, 115. Antiphlogistic treatment, 115. Local sedatives, 118. Strapping, 120. General sedatives, 122. Pressure, 123. Resolvents, 124. Local applications to ulcers, 126. Caustics, 127—136.

CHAPTER VIII.

TREATMENT OF SCIRRHUS (*continued*).

The question of age as regards operation, 139. Of physiognomy and cachexia, 140. Of hereditary taint, 141. Of the situation of tumour, 144. Of its size, 145. Connections, 145. Scirrhus of the penis, 147. Mode of removing scirrhus of the breast, 148. Effect of erysipelas after operation, 150. Tubercular scirrhus, 152. Average duration of life, 157.

CHAPTER IX.

CANCROID TUMOURS.

Their definition, 162. Epithelioma not cancroid, 162. Tumours to be classed under the term, 163. Their microscopic characters, 163—5.

CHAPTER X.

FIBRO-PLASTIC AND MYELOID TUMOURS.

Their site, 166. Cell-forms, 168. External appearances, 169; progress, 170; and appearances on section, 172. Cases, 172. Jacob's ulcer, 178—184.

CHAPTER XI.

RECURRENT FIBROID AND FIBRO-NUCLEATED TUMOURS.

Their elementary composition, 185. Physical characters, 186. Cases, 188—194.

CHAPTER XII.

FIBRINOUS OR HÆMORRHAGIC TUMOURS.

Their mode of origin, 195. Minute structure, 196. Examples, 197. Described by Mr. Hey along with encephaloid under the name of fungus hæmatodes, 204. Cases, 205—6.

CHAPTER XIII.

COLLOID TUMOURS.

Not cancer, 206. Their seat, 207. Physical characteristics and microscopic appearances, 209. Cases, 210—217.

CHAPTER XIV.

CHAPTER XV.

EPITHELIOMA.

Its synonyms, 226. Situations, 227. Stages, 229. Cases of cutaneous epithelioma, 238. Question of infection, 240. External applications, 243. Epithelioma of mucous membranes, 247. Of lip, 247. Operations for, 254. Of other mucous surfaces, 260. Of tongue, 267. Operations for, 269. Of os uteri, 274.

CHAPTER XVI.

CYSTIC TUMOURS.

Their cause, 278. Varieties, 279. Of breast, 280. Cases of, 281. Of testis, 286.

CHAPTER XVII.

ADENOID TUMOURS.

Nature and origin, 290. Cases, 295. Occasional dangers of operation, 298.

CHAPTER XVIII.

MELANOSIS.

Varieties, 300. Cases, 301.

EXPLANATION OF WOOD ENGRAVINGS

IN CHAPTER I.

Fig. 1. Cells of fibroid tumour.
„ 2. Cells of fibrinous tumour.
„ 3. Cells of fibrous tumour.
„ 4. Cells of fibro-plastic tumour.
„ 5. Cells of encephaloid cancer.
„ 6. Cells of scirrhous cancer.
„ 7. Cells and fibres of connective tissue.
„ 8. Cells of granulation and cicatricial tissue (lymph-cell and its organization).
„ 9. Tubercle-cell (much too large).
„ 10. Pus-cell.
„ 11. Cells and fibres of fibro-cellular tumour.
„ 12. Cells of fibro-nucleated tumour (from case of Doyle, page 188).
„ 13. Nuclei and mother cells of myeloid tumour (too large).
„ 14. Cells of encephaloid cancer, containing oil-globules.
„ 15. Cells of scirrhus (too large).
„ 16. Dust and fragments of perishing cells of scirrhus.
„ 17. Oily degeneration and destruction of cells of encephaloid.

These figures are engraved on wood by Mr. Oldham with extreme pains and care, from drawings by the author. They have all been reduced one half from the original sketches drawn to scale from Smith and Beck's ¼in., except figs. 13 and 15, which were accidentally left of the full size, and fig. 9, which is about one third too large.

EXPLANATION OF PLATES.

PLATE I (*page* 1).

Fig. 1. Cells from scirrhous breast. (Drawn to scale, Smith and Beck's ⅕in.)

Fig. 2. Cells of fibro-plastic ulcer of the face (from a photograph taken by the author. Ross' ⅛in.)

Fig. 3. Cells from scirrhus of breast. (Drawn to scale, Smith and Beck's ⅕in.)

Fig. 4. Epithelial cells from epithelioma of lip (from a photograph by the author, reduced by mistake to one half. Ross' ⅛in.)

Fig. 5. Epithelial cells from healthy lip (from a photograph by the author. Ross' ⅛in.)

Fig. 6. Cells from a curious epithelioma at the angle of mouth and cheek in a man aged thirty-five. There are several epithelial cells of different size, and one long fibre-cell, immediately above which lie small lymph-cells, and below it, two oily or granular lymph-cells and two young epithelial cells or mucus-corpuscles; and at the bottom of all several epithelial cells are arranged concentrically in a kind of ball. (Drawn to scale from Smith and Beck's ⅕in., and reduced to one half.)

Fig. 7. Cells from fibro-cellular or desmoid tumour of labia, the upper cell burst at the angle and the nucleus escaping. (Smith and Beck's ⅛in., reduced to one half.)

Fig. 8, *a* and *c*, lymph-globules; *b*, oil-globules. (Smith and Beck's ⅛in.)

Fig. 9. Stroma and nuclei of scirrhus of breast, treated with acetic acid (⅛in., about 150 diameters).

Fig. 10. Cells and fibres f

PLATE II (*page* 48).

Encephaloid cancer of right breast. The drawing shows the varicose condition of the cutaneous veins, resulting solely from distension of the skin; the pendulous nipple is also well shown. (From a wax cast by Berger.)

PLATE III (*page* 51).

Encephaloid cancer of right breast, ending in fungus hæmatodes. (From a drawing by Connolly.)

PLATE IV (*page* 76).

Encephaloid of right arm. (From a drawing by Connolly.)

PLATE V (*page* 90).

Fig. 1. Section of scirrhous cancer of mammary gland, in which the areola is retracted and the nipple prominent, owing to the portion of gland under the nipple being healthy, and the parts all round it diseased. The cancer had commenced in the axilla.

Fig. 2. The largest gland in the axilla, from the same patient. (From drawings by Connolly.)

PLATE VI (*page* 103).

Atrophic scirrhus of the left breast of four years' duration. The strong contraction of the fibrous tissues of the breast, by means of which a kind of natural cure of the disease is brought about, is well shown by contrasting the two breasts. (From a photograph by Forster, of Westmoreland Street.)

PLATE VII (*page* 106).

Lardaceous scirrhus of right breast. The contraction of the nipples

PLATE VIII (*page* 188).

Fibro-nucleated tumour of right foot, successfully removed. (From a drawing by O'Neill.)

PLATE IX (*page* 200).

Fig. 1. Fibrinous or hæmorrhagic tumour (cystic) of testis. The cysts are seen cut open and filled with half-organized coagula. (From a drawing by Connolly.)

Fig. 2. Melanotic cancer of the contents of the orbit. (From a picture in Lebert's 'Microscopic Pathology.')

PLATE X (*page* 241).

Epithelial ulcer of leg in which caustic had been used. The tibia in this case was eaten half way through, and amputation became necessary. (From a drawing by Connolly.)

PLATE XI (*page* 257).

Fig. 1. Operation for forming a lip where a square portion is removed.

Fig. 2. Buchanan's operation for forming a lower lip where the whole free margin is removed.

Figs. 3 and 4. Author's modification of the foregoing operation.

Fig. 5. The dotted lines show the subcutaneous dissection in Rynd's operation for bringing up the covering of the chin to form a new lower lip. In persons of loose skin it is sufficient to dissect as far as the upper line; but where parts are scanty, the dissection must be carried to the level of the lower line.

Fig. 6 shows the result in a case of Rynd's.

Figs. 7 and 8 show a modification of Rynd's operation, where less was removed, and the result.

PLATE XII (*page* 258).

Fig. 2. Epithelioma of lower lip, the result of imperfect removal by a caustic plaster.

Fig. 1. The result, after one operation.

Fig. 4. A case of extreme epithelioma of lower lip in which caustic had been applied several times.

Fig. 3. The result, after three operations, for the formation of a new lip, par glissement.

(From photographs by Forster and Haskoll, Westmoreland Street.)

PLATE XIII (*page* 281).

Fig. 1. Sero-cystic disease of the breast. (Connolly.)

Fig. 2. Dark mole, the papillæ becoming hypertrophied. First stage of epithelial disease. (W. H. Porter.)

Fig. 3. *a*. Black corpuscles, or cancer-cells, from melanotic cancer. *b*. Simple black granules from non-cancerous melanosis. (From Lebert.)

PLATE XIV (*page* 297).

Fig. 1. Proliferous cyst of breast. The growth within the cyst was cancerous. From a young lady aged eighteen. (Connolly.)

Fig. 2. Adenoid tumour. (From Velpeau's 'Diseases of the Breast.')

Fig. 3. Section of an encysted and cystic adenoid tumour removed from the breast of a lady aged twenty-one. (Drawn from nature.)

PLATES XV & XVI (*page* 304).

Case of melanosis, non-cancerous, sebaceous. (Connolly.)

ERRATA.

PLATE I

Fig 1

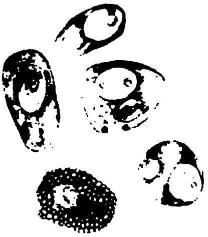


Fig 2

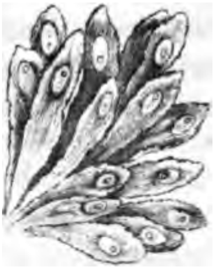


Fig 3

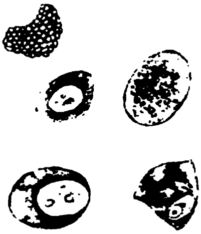


Fig 4

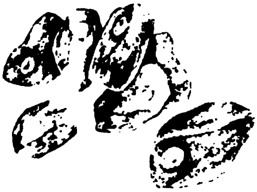


Fig 5

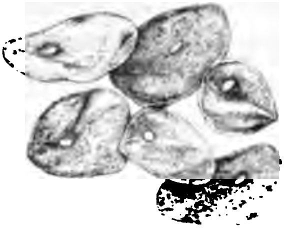


Fig 6

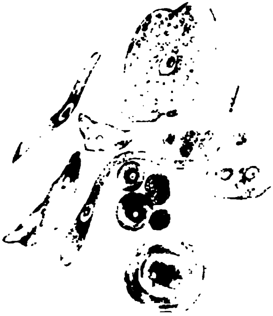


Fig 7

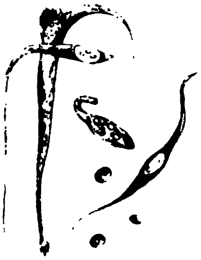
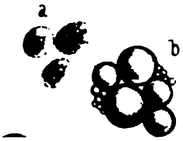


Fig 8



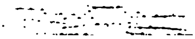
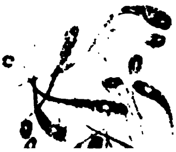


Fig 10



ON TUMOURS.

CHAPTER I.

VARIOUS FORMS OF CELL GROWTH.

THE diagnosis of disease must be founded upon a sound knowledge of Pathology. Hence, as means of investigation improve, many diseases come to be distinguished from one another which had formerly been confounded under one common head. Cancer, in the earliest use of the term, was the name given to any foul ulcer the result of sloughing or gangrene; carcinoma being applied to tumours of a hard and painful nature. After many shifting uses of the words, both came to be applied indiscriminately to all tumours of a hard nature, with a tendency, however, in most writers to apply the term cancer specially to such as were in a state of ulceration. At a somewhat later period the term scirrhus came into use as the designation of a suborder, to include only such cancers as had not ulcerated, carcinoma being then referred only to such scirrhous tumours as were painful. All these variations of nomenclature and additions of new terms were more or less fanciful, or, at least, founded solely on clinical differences imperfectly understood for lack of interpretation by as the napiform, apinoid, nephroid, solanoid varieties—names which were applied according as the appearance of the recently divided tumour happened to resemble a slice of turnip, pear, kidney, potato, &c. Still these names, childish as they now seem to us, showed that there was an effort to comprehend, and a desire to appreciate at some value, certain anatomical differences which revealed themselves to the unaided eye. Those who gave them were the pickets of an army of minute observers who have within our own memory conquered much of this *terra incognita* of surgery.

The able microscopists of the last twenty years have succeeded in clearing away most of the obstacles which an imperfect knowledge of the true pathology of cancer had placed in the way of its scientific treatment. Some of them, no doubt, mistook their first successes for a perfect conquest, and sang Io triumphe in no measured pæan; but considering the amount and rapidity of the real gains to knowledge and practice, even graver errors than these would be of little comparative moment.

The combination of microscopic investigation with clinical study has cleared up much that was obscure and unintelligible, and has rendered safe and scientific much that before was empirical in practice. Not only have the means of diagnosis been improved, and treatment rendered more sure, but the results, in a given case, can now be predicated with a certainty that we could not have ventured to use a few years ago.

Cancer belongs to the class of infiltrating growths. It is an interstitial deposit of certain cells of monstrously abnormal type. If we examine a specimen of undoubted cancer, we shall find it composed of a vast congeries of cells filling the resemblance to typical forms, which, for convenience sake, are termed cancer-cells. In different specimens, and even in any given specimen of cancer, great variations will be observed in the size and outline of individual cells, but the general aspect of the elements of each tumour is similar. Many causes produce these variations: the most important are the rate of growth of the cells, and the length of time that they preserve their vitality. To these may be added the position the cell occupies in relation to its fellows and to the natural structure of the part; practically, however, the cells of each tumour have a marked resemblance to each other upon the whole, and are referable to either an acute or a chronic type of cancer-cell. The cancer-cell, first insisted on as a special element of cancer by Lébert, and by him considered a cell *sui generis,* is now to be regarded as a modified lymph-cell. Monstrously altered in size, it would be difficult to recognise its origin were it not that in other infiltrating growths we find cells of a medium type between it and the cell of healthy tissue. Thus in the simple fibroid tumour, the constituent cells (fig. 1) are but little removed in size and shape from the healthy type; their peculiarity takes the direction of an arrested development. Again, in the fibrinous tumour, we find cells (fig. 2) of a similar character, with an imperfect tendency to development; in the fibrous tumour th

Fig. 1.

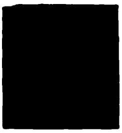


Fig. 2.

tumours, with a tendency to destructive action, like cancer, but less intense, the cells (fig. 4) are larger and caudate, stopping short of cancer as to size, and of fibre-cell proper as to development. Then, again, in acute cancer, the cells (fig. 5) are small compared with those of scirrhous or chronic cancer; while in the latter (fig. 6) there is, as a rule, more attempt at caudate development. Now, though the extremes of this chain may be very unlike, yet the resemblance can be traced up from one link to another, and the points of difference can be satisfactorily associated with differences in the rate and power of development. These, again, have a practical connection with the clinical features of each case, and, combined with a proper study of the latter, lead to an accuracy and certainty of practice formerly not attainable without a life-long and empirically-founded experience. As a general expression of these facts, I have ventured to enunciate a formula which seems to satisfy the requirements of our present knowledge of the subject. It is,

FIG. 3.

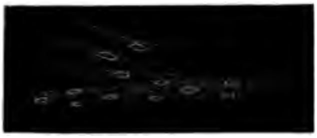


FIG. 4.

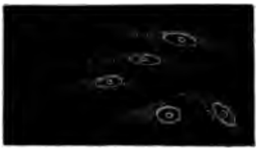
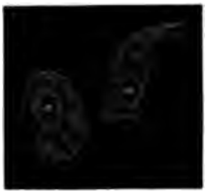


FIG. 5.

FIG. 6.



the more clinically benign is the tumour; the farther they are removed in these two particulars from the healthy type, the more destructive or malignant is the growth. To this I would add the further observation, that tumours of rapid growth, and with a tendency to recur, have round or oval cells, which are rapidly reproduced, and have small powers of development in the direction of fibres, while the more chronic tumours, as a rule, are composed of cells which have more or less tendency to form fibre. By a combined use of these formulæ or laws, a correct conclusion may generally be deduced as to the rate of growth of any given tumour, and its tendency to return, even when its clinical history and features are unknown to us. It is not, however, expedient to get the habit of examining tumours microscopically, without as accurate an acquaintance as possible with their clinical aspect.

As the lymph-cell, or cell of connective tissue, gives origin to the cell-elements of all morbid infiltrating growths, it will be well to commence our studies of their structure by a description of it, and by showing how the various morbid cells differ from it in form and vital powers.

Cells of connective tissue, lymph-cells.—The pure cell of connective tissue is a fusiform cell, with nucleus and nucleolus. The cell is at first round and small, about 1-2000th of an inch in diameter; the nucleus is also small, and the nucleolus a mere shining point. The nucleus may be obscured by the presence of fine granular matter in the cell, especially during the early period of the cell's life; if, however, we add water, the cell-wall expands, the granular matter is disturbed, and in moving about, it discloses the nucleus adhering to and bulging out the side of the liable to be broken up and dissolved. Ether acts with still more energy on the cell-wall, breaking it up very rapidly. A solution of caustic potash does the same, but leaves a soapy mass which gives a very dirty field under the microscope.

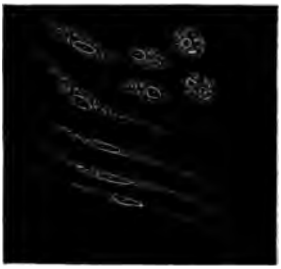
The cell develops into a fibre in the following manner:—The nucleus becomes oval, the cell soon follows the example; it becomes in time more oval than the nucleus, and its ends become elongated so as to give the whole cell a fusiform outline. The fusiform ends of the cell may be spun out into a tail of indefinite length, and may anastomose or unite with the tails of neighbouring cells. Virchow holds that these connections of cells with one another constitute a sort of vascular system, and that a real circulation of the contents of the cells is kept up by this means from one to another. Whether this be so, or whether the older doctrine of circulation by endosmose and exosmose is to be adopted, there is no doubt that there is a power by which the properties of cells pass on from one to another, and by virtue of which those which are diseased propagate their abnormal condition.

FIG. 7.

This typical cell of connective tissue is variously modified and arranged; sometimes, as in fibrous tissue (see fig. 3), the cells lie with great regularity close together, the centres of the cells in one row corresponding to the ends of those in another; at other times the cells are round or oval, with no caudate or fusiform development, and no connection with one another, but are embedded in a hyaline basis, as in the adipose tissue and some of the more complex glands. In fact, according to Virchow, from these cells are developed all the tissues of the body, either directly or indirectly.

The lymph-cell, as I understand it, is a cell which has its origin in the same manner and from the same parentage as the cell of connective tissue, but which differs from it in this particular—that being destined, not for the ordinary growth or nutrition of the body, but for effecting one process or other which diverges from these natural states of healthy action, it also diverges in its form and power of development from the healthy cell. I find the fully-formed lymph-cell to be different from the cell of connective tissue at the outset. This difference is exhibited both by its physical characters and by the history of its after life and progress (fig. 8).

Fig. 8.



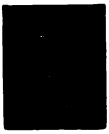
In appearance under the microscope the lymph-cell is different from the healthy cell, by the greater darkness of all its elements, and also by its somewhat greater average size. This darkness is owing to the greater quantity of oil which enters its composition; the cell is characterised by a lower organisation which interferes with the perfect development, so that repaired tissue does not perfectly come up to the standard of healthy tissue. The cell, originally of inferior composition and lower vitality, will form a thin and poor fibre, which ultimately occupies less space than a healthy fibre; hence the contractile tendency exhibited in all tissues of repair.

starved cell of tubercle, with its utter inability to develop into a fibre (fig. 9).

Pus affords another example of the low vitality of the lymph-cell. Pus-cells (fig. 10) are only lymph-cells which have perished, and which in parting with most of their nitrogeneous element exhibit a superabundance of oily granules in their interior. This is the true reading of the multiple nucleus of the pus-cell; it is not, as Virchow and Lionel Beale would have it, a spontaneous and vital division of the nucleus preparatory to a multiplication of the cell by division: it is only a step towards the disintegration of the cell, and an evidence of the loss of its life in its very centre and most vital part.

FIG. 9.

FIG. 10.



My doctrine with regard to the lymph-cell is this—that, although developed in the same manner and from the same parent cell as the cell of connective tissue, and all the normal cells of the tissues of the human body, yet, being injured in its birth (so to speak), either by external violence or by a deficient supply of sound material, it has *ab initio* a tendency to perish prematurely or to develop into some abnormal form. I have briefly instanced the cells of pus and tubercle, and the fibre-cells of cicatricial tissue, as examples of these tendencies: I shall now pass on to consider the bearing of these views upon the structure and classification of tumours.

The lymph or granulation cell may multiply without at development. Tumours composed of such cells have a constant tendency to recur in loco.

Or the cell may not only multiply, but it may also develop into a comparatively perfect and normal fibre. Tumours composed of these cells do not recur.

Or the cell may deviate in size and in the size of its nucleus from the natural type, without tendency to develop into fibres. Tumours composed of such cells are recurrent. If the cell and nucleus be undersized, they are only recurrent in loco and do not poison distant parts; if, on the other hand, both cell and nucleus are too large, the tumour is recurrent and clinically malignant in proportion to this deviation of its cellular elements from the normal type.

If, in addition to an increase in the size of the cell and nucleus, there be added a power to develop into forms approaching to fibres, there will be not only recurrence in loco, but a general tendency to poisoning in proportion to the power of development possessed by the cells. Attention to these rules will enable us to judge of the rate of development, the tendency to general or local recurrence, and the ultimate termination of most tumours, and for all practical purposes to group them into a sufficient number of classes for clinical teaching.

It must be remembered that there is no such identity of form in the component cells of any tumour as that any one or two cells taken at random from its substance can be taken as types of the whole. In any tumour there will be many elements, for there will be many disturbing causes which will modify here and there individual cells; but it is undeniably true that the bulk of any tumour is made up of cells which are to all intents and purposes sufficiently identical with one have a common parentage, any classification founded upon their characters can only be taken as a general guide by which a given tumour may be judged as to its nature and probable progress, and by which, for the purposes of surgery, it may be named. In fact, names are apt to lead astray from things those who do not think sufficiently deeply; and when a tumour is classed as recurrent fibroid, cancerous, or fibrous, some persons at once expect that they are to find an identity in its structure with all which are ranged under the same name, forgetful of the fact that the clinical features of all diseases vary, and that it is not to be expected that their anatomical structure shall not also vary. In point of fact, there is as great individuality in the microscopic aspect of tumours as in their clinical features, and were we to go rigidly into the minutiæ of difference, we should have as many classes of tumours as cases. Just as in every case of strangulated hernia, for example, there is something new to be seen, so in every tumour there will be seen some little peculiarity. We must, then, only classify them in a general manner, content to find many tumours on the border lines of our classes, which we shall be unable to refer to one class or the other. The rules which I have given above will, however, generally enable us accurately to give both the diagnosis and prognosis in any given case, although we may occasionally find a difficulty in naming a tumour. Thus, as before stated, the extreme forms of fibro-plastic cells bear such a resemblance to some forms of cancer, that one observer will call the tumour by the former name, and another by the latter; but this is immaterial so long as both can recognise the tumour to be of considerable tendency to recur and of moderate tendency to general poisoning.

tumours, or, as Mr. Paget calls them, fibro-cellular. These are situated in the texture of the skin itself, and are found in various regions, more especially in the scrotum, prepuce, labia majora, lobes of the ear, and alæ of the nose. Such tumours are composed of the ordinary elements of skin, *plus* a large amount of undeveloped cells (fig. 11, and Pl. I, fig. 7).

FIG. 11.

According to the preponderance of the cellular element, their recurrence is to be looked for after operation.

The cells are very similar to the ordinary cell of connective tissue as found in these situations in the healthy condition (fig. 3). The only difference to the eye is that they have a slightly darker outline, and that they are more filled with granular matter than the common cells. I believe this to be due to a greater preponderance of oil both in the texture of the cell-wall and in the contents of the cell; but whether this is an indication of greater activity of growth and reproductive power, as Virchow and Wilks seem to hold, or whether it be not rather an evidence of a weak affinity between the oil and albumen which enter into their composition, and so rather an evidence of a tendency to rapid decay, is a question of no great practical importance. I am inclined to think that these appearances indicate the approaching death of a cell more than any active power of reproduction; at least directly, for it cannot be denied that the cells are actively reproductive, and the general law of na tumours show evidence of a longevity, at least of a slowness to yield to destructive chemical influences, which the cells of rapidly growing tumours do not possess.

The ordinary cell of connective tissue will develop into a fibre if it follow a healthy course; so, too, will the cell of plastic lymph poured out for the repair of injury. But as regards tumours, we find it to stop short in any stage of its development; sometimes it gives evidence of its fibre-forming tendency by becoming oval, ovoid, or awn-shaped. A large group of tumours are formed of cells of this type, held together by areolar tissue more or less dense. These are the fibrinous tumours, the fibroid, the recurrent fibroid, soft polypi, and certain jelly-like or colloid tumours not cancerous, with the fibro-nucleated, and other similar varieties. All of these may be classed together, their differences being slight both in an anatomical and in a clinical aspect. In some instances, especially in the recurrent fibroid (fig. 1) and colloid (Pl. I, fig. 10) varieties, the cell will be singularly pale and fine, and readily broken up; in others, as in the fibro-nucleated (fig. 12), it is more tough and resisting, though differing little in outline or appearance. All these tumours have their seat in the areolar tissue; they are generally subcutaneous, but often also more deeply situated in the inter-muscular spaces, and even on the periosteum, in the cavities of cysts, and elsewhere.

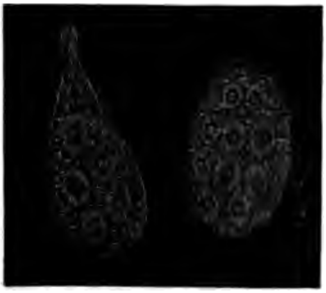
FIG. 12.

Very different in character are the important tumours which are composed of fibres fully developed. In these the cells advance through all their stages of existence and progress, deviating little, if at all, from the healthy standard; and the tumours which are so built up more nearly resemble fatty tumours. Fibrous tumours, however, seldom come under the direct cognisance of the surgeon; they are found in the uterus and its analogue, the prostate gland, upon nerves, in the testis, and, according to Paget, on bone or between its layers. Their constituent elements are fine and well formed, wavy, fibrous tissue, generally with the addition of a few nuclei and partially developed cells; the fibres are arranged more or less concentrically, especially in the uterus and prostate.

We now come to consider wider deviations from the healthy form of lymph-cell, and their influence upon the nature of the growth. Up to this point we have met with nothing more abnormal than imperfect development, irregular grouping, or redundant growth. For the first of these we must now substitute increase in size, and from the combination of the three, in various proportions, at least two distinct classes of growth may be deduced. To those in which the cells present the greatest deviations from health in the direction of increased size, irregularity, and reproductive energy, the name of cancer is given; to those in which these abnormal features are less marked, the terms fibro-plastic and myeloid have been given. Fibro-plastic tumours are found especially connected with muco-fibrous periosteum: they are found on the gums, as malignant epulis; in the nasal and pharyngeal cavities, springing from the basilar process or spongy bones, under the name of polypi; they are also found on the periosteum of the bones of the face, and about the shafts of long bones, especially near their extremities, where they are frequently taken for soft cancers. Their elements are large flask-shaped cells, with large nuclei, differently arranged in different tumours on the average, as are also their nuclei; but this point cannot be insisted upon with certainty, as the larger cells of fibro-plastic growths, and the smaller cells of cancer, are not distinguishable when taken singly. It is by the greater irregularity of form and grouping that the cells of chronic cancer are to be distinguished; in the secondary growths of fibro-plastic and of cancer there is no difference of structure, just as there is none in their clinical aspect.

Myeloid tumours, so named by Mr. Paget from the resemblance of their cell-elements to the irregular cells which are found in the marrow of fœtal bones, are found in connection with internal periosteum: they are met with in the antrum, and within the shafts of bones. They frequently cause great expansion of the bones, without accumulating in masses in the cavities, so that nothing is found in the interior of the expended cavity but a thick and granular periosteum of a reddish tint; at other times there is a soft and easily broken-down pulpy mass, sometimes interspersed with plates or scales of bone, probably the remains of cancelli. The cells are irregular; they are either flask-shaped or stellate, like fibro-plastic-cells (fig. 4), or else more or less regularly oval, with numerous nuclei (fig. 13), which are generally oval, and not as large as the nuclei of cancer; the cell-walls are pale, and readily break up, so that many free nuclei are to be found in each specimen.

FIG. 13.

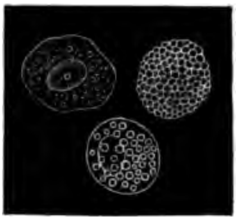


Finally, we come to genuine cancer and its cell-elements.

ticular from the parent-cell. We meet with cancer in every organ; wherever connective tissue is found, there may cancer spring up. As we shall see, when treating of its etiology, some localities and organs are more liable to be attacked than others, but none seem absolutely exempt from its inroads. It spares neither age nor sex: at times slow and insidious in its approach, it is scarcely perceived until it has inflicted a deadly blow; while, in other cases, its march is terrific in its rapidity, and only less destructive because its fatal tendency is at once revealed.

Cancer-cells are met with in tumours under two opposite conditions — the acute and the chronic. The cell of acute or soft cancer is round or oval, of large size (figs. 5 and 14), averaging about the 1-1500th of an inch in diameter, with a large oval nucleus, placed generally eccentrically; the cell-wall is pale, often obscured by oil-globules, which seem to adhere to its inside; it is easily broken up by the usual chemical reagents (weak acetic acid, ether, iodine, potash, &c.). The nucleus is dark and well-defined, with a distinct shining nucleolus: the nucleus is very often obscured by the oil-globules in the interior of the cell, but when the cell-wall is broken up and the oil-globules are dispersed, it will come into view, provided the reagent used be sufficiently weak, otherwise it may also be broken up.

FIG. 14.



The cell in encephaloid differs from that in scirrhous cancer, just as the epithelium in soft and moist situations differs from that in which atmospheric and other influences tend to flatten and compress the cells.

irregular, sometimes caudate or even imperfectly fusiform, but in such cases they are rounder, whereas the irregular cells are plainly flattened. Much of the dust and fragments of broken cells, mixed with free nuclei, is to be found in specimens of scirrhus (fig. 16). The cell appears to perish by loss of assimilating power; it seems as if it dried, cracked, and fell away into dust. The rounder and more acute cells of encephaloid go through a process of oily degeneration (fig. 17), the little oil-bubbles gathering about and obscuring the nucleus until the greater part of the cell is full of them; the cell-wall then gives

Fig. 15.

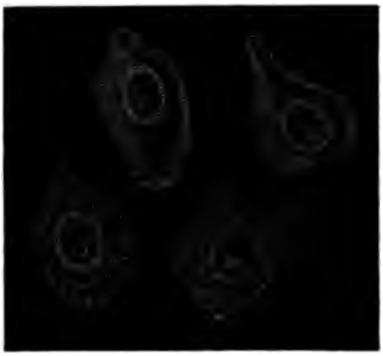


Fig. 16.

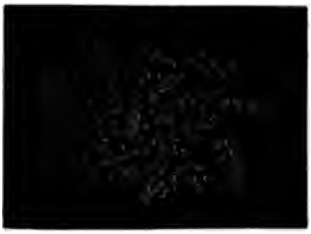
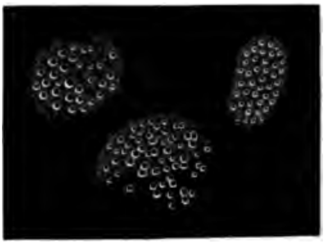


Fig. 17.



the resulting oil-globules are soon dispersed. In scirrhus the nuclei are much more persistent, and are often found in great numbers where few or no perfect cells are to be met; in such cases they are surrounded with fragments and dust, as stated above.

Such, then, are the principal varieties of morbid cells as occurring in tumours, and taking origin from the typical lymph-cell of inflamed or repairing tissue. They form a graduated series, with occasional varieties branching off, and they require to be studied in their analogies with, as well as in their divergence from, one another.

CHAPTER II.

GENERAL REMARKS ON THE CLINICAL ASPECT OF TUMOURS.

The variations in the symptoms and signs of tumours are as infinite as those in their minute anatomy. A careful observer in this as in any branch of surgery, or indeed any domain of nature, will note minute differences in each individual case. It is, however, the business of all who seek to impart knowledge, to arrange and classify the subjects that come before them into more or less artificial systems. The differences in systems must be looked upon in this light, if one would give due credit to every observer for his contributions to general truth. Much of the mode of arrangement adopted will depend on the point of view from which the subject has been principally studied. Something also is to be allowed to individual or even national temperament.

All the classifications of tumours, up to the commencement of the investigation into their intimate structure by the microscope, dealt with their more apparent qualities and properties, their texture, feel, colour, and consistence, and, to a certain extent, their effect on the proper tissues of the body and the general health of the patient. As long as men had no other guide these were rightly and properly adopted as the only available groundwork on which to build the classiapplied to the dissection of tumours, it was not unnatural that its revelations should for a time supersede all other knowledge on the subject, at least with those who heartily cultivated this means of investigation. From the labours of both classes of men it will be our wisdom to select what is most suited to the present period, and, without inventing new terms, to use such as are best known, and to give them as clear and definite signification as is consistent with the truth above enunciated of the individuality of diseased actions.

Not to go back too far into ages that were really dark, it will suffice to reproduce here the tabular view of cancer, or carcinoma, given in Walshe's book. This work, published in 1846, is now quite out of date as an authority on the structure of cancer, although it will for years justly hold its ground as a treatise on regional cancer. Few works are more conscientiously minute and painstaking on this part of the subject.

Species.	Varieties.	Synonyms of the Species.
Encephaloid or soft cancer.	*a*. Mastoid cancer. *b*. Solanoid „ *c*. Miltlike „ *d*. Nephroid „ *e*. Fasciculate „ *f*. Hæmatoid „ *g*. Fungus hæmatodes.	Spongy or ossivorous tumour. Ruysch, 1691; Palletta, 1820. Anomalous tumour. Monro, 1^{mus}, 1781. "Atrox rarissimusque morbus." Boerhaave, 1783. Pulpy testicle. Baillie, 1796. Struma fungosa (testis). Callisen, 1800; Auct. Ital. Var. Spongoid inflammation and tumour. Burns, 1800. Fungus hæmatodes. Hey, 1803; Wardrop, 1809. Medullary sarcoma. Abernethy, 1804. Encephaloïd, or cerebriform degeneration or cancer. Laennec, 1805. Miltlike tumour. Monro, 3^{tius}, 1811. Carcinoma spongiosum. Young, 1813. Soft and spongy carcinoma. Roux, 1814. Carcinus spongiosus. M. Good, 1817 (afterwards classed by him with the genus Ulcus). Fungoid disease. Astley Cooper, 1818; Hodgkin, 1836. Medullary fungus. Maunoir, 1820. Acute fungous tumour. C. Bell, 1822. Galactomyces. Ritgen, 1828. Medullary cancer. Travers, 1832. Cephaloma. Hooper, 1828; Carswell, 1834. Carcinoma medullare. Müller, 1838. Soft cancer [acute cancer]. Auct. var.
Schirrhous or hard cancer.	*a*. Pancreatoid cancer *b*. Chondroid „ *c*. Lardaceous „ *d*. Napiform „ *e*. Apiniform „ *f*. Hæmatoid „	Carcinomatous sarcoma. Abernethy, 1804. Carcinoma scirrhosum. Young, 1813. Carcinus vulgaris. Good, 1817. Scirrhous cancer. Travers, 1832. Scirrhoma. Hooper, 1828; Carswell, 1834. Carcinoma simplex et reticulare. Müller, 1838. Stone cancer. Auct. var. [To which he might have added Chronic cancer.]
r jelly- ncer.		Colloid matter or tissue. Laennec, 1805. Scirrhus ventriculi. Otto, 1816.

This table gives a fair idea of the somewhat fanciful designations given to cancer in its various aspects, by the generations of surgeons which have passed and are passing away. Many of these names have already disappeared, and for all practical purposes they are well got rid of.

It was by no means uncommon to apply one or another of these designations to tumours which had nothing cancerous in their nature. Indeed, if we except the groups of simple hypertrophies, enchondromata, cystic, fatty and fibrous tumours, we might say that all other morbid growths were known by some of the names in this rather copious vocabulary. Many that were doubtful in their nature were classed as sarcomata —one of those convenient cloaks which abound in all imperfectly developed sciences; and as it was easy to add the words benign or malignant, the covering was sufficiently ample, and for the time answered well enough.

Bringing the information as to structure derived from microscopic studies to the light of clinical experience, Mr. Paget has rearranged tumours into Innocent and Malignant. The innocent into—

(*Paget's Classification of Benign Tumours.*)

I. Cystic Tumours. Cysts.
  A. Simple or barren.
    Serous. Hygromata.
    Synovial.
    Mucous.
    Sanguineous.
    Oily.

B. Compound or proliferous.
  Complex cystic.
  With glandular or other vascular growths.
  Cutaneous.
  Dentigerous.

II. Solid tumours and outgrowths.

  Fatty; adipose.
  Fibro-cellular; areolar; connective tissue.
  Fibrous; fibro-muscular, fibro-elastic, &c.
  Cartilaginous tumours or enchondromata.
  Myeloid.
  Osseous.
  Glandular.
  Vascular (or erectile) tumours.

To which he adds recurrent, irritable or neuralgic, pulsating, floating, and phantom tumours.

Malignant tumours (or cancers, for with him the terms are convertible) are classed as—

Scirrhous or hard cancer,
Medullary cancer, and
Epithelial cancer.

He gives other varieties, as Melanoid, Hematoid, Osteoid, Villous, and Colloid.

To the general arrangement into malignant and benign or innocent there is one great objection, namely, that many tumours are malignant or destructive to life, if allowed to run on to a natural conclusion, which would be undoubtedly benign if duly and timely treated. Mr. Paget cuts this difficulty short by making the terms malignant and cancerous much better to use these terms in their natural sense, as implying clinical features. If a tumour is destructive to life or tissue it is malignant; if not, it is innocent or benign. Many cancers are not malignant; many non-cancerous growths are eminently destructive to life. On another point I think that Mr. Paget's classification or nomenclature is bad, namely, on the subject of epithelial disease. I do not believe its analogies to cancer to be so marked as to justify us in calling it cancer. It possesses marked differences in its mode of origin, in its progress, and in its destructive qualities. It more nearly resembles pure and simple hypertrophies in its early stages; while, in its destructive properties, more especially in its secondary developments, it bears no greater resemblance to cancer than many tumours classed by Mr. Paget as innocent. No doubt in its last stage it is an infiltrating growth, as cancer is; but so are all the recurrent tumours—so are fibro-plastic growths and some of the simplest fibroid growths. All secondary tumours have a strong family likeness, and it would be often (but not always) impossible to say what primary growth gave rise to a given secondary. However, I prefer the name Epithelioma, as free from objection; it leaves the question an open one of the cancerous or non-cancerous nature of the disease.

The classification which I shall adopt is founded on the structure of tumours. I shall not devise new names, but endeavour to give to the existing names some kind of order, and to arrange them into certain large groups or classes. It is immaterial, in a scientific point of view, whether the arrangement proceed from those tumours which are most abnormal, to those which are least, or *vice versâ*. Perhaps as cancers present the most marked divergence from a state

A. Tumours which are mainly composed of cells of various forms and powers of development.
  1. Cancer or carcinoma.
    a. Acute or encephaloid cancer.
      Variety—Fungus hæmatodes.
    b. Chronic or scirrhous cancer.
      Varieties—Atrophic scirrhus.
        Lardaceous scirrhus.
Cancroid.
  2. Fibro-plastic tumours.
      Variety—Myeloid tumours.
  3. Fibroid or recurrent tumours.
      Varieties—Fibrinous or hemorrhagic tumours.
        Colloid tumours.
  4. Fibrous tumours.
      Varieties—Fibro-cellular tumours.
        Some polypi.
        Erectile tumours.
        Neuromata.
  5. Epithelioma.
B. Tumours in which the cellular element is not the one of primary importance.
  1. Cystic tumours.
      Varieties—Serous cysts.
        a. Simple.
        b. Proliferous.
        Sebaceous cysts.
Accidental condition common to many of the foregoing.
Melanosis.
a Cancerous; *b* Fibrinous; *c* Cystic.
  2. Fatty tumours.
  3. Enchondromata.
  4. Bony tumours.

A. *Tumours which are mainly composed of cells of various forms and powers of development.*

In the previous chapter I dwelt mainly upon the connection between the form of the cellular elements of these tumours and the lymph-cell; and I pointed out that the more the cell diverged from the healthy form and development, the more malignant did the tumour appear to be. In the present chapter I shall go on to consider the general aspect of each form of tumour and the localities it is found in.

The large class of tumours grouped together by the above designation are mainly infiltrations—those at the top of the series, the cancers, eminently so. The two next in order, and named fibroplastic and fibroid, are nearly equal to cancer in this particular, while the fibrous, commencing as an infiltration, generally becomes more or less irregularly encysted, and the epithelial growths do not become infiltrated among the tissues until the stage of ulceration has existed for some time.

When secondary growths arise in the neighbourhood after removal or in distant parts, they are always infiltrating, from whichever of the group they spring. The tendency to recur is connected with a deficiency in the power of development of the cell into fibre, and is greatest in tumours composed of cells which do not so develop.

Cancer or carcinoma is eminently an infiltrating growth, and the fact that under certain circumstances it forms tumours more or less defined, does not contravene this assertion. What is at first an infiltration may readily invest itself after a time with a more or less complete cyst by pushing aside and condensing the tissues in the midst of which it has first been deposited. This happens in the more form of the disease. But, as a rule, cancer is strictly an infiltration of cells of a monstrous type into the natural areolar tissue. No part of the body is free from this infiltration; wherever areolar tissue is found, cancer may also be found. Most frequently of all its seat is in the female breast, next in order is the uterus, next the bones, then the glandular system, the eye, the testis, and ovaries. I doubt if we have yet sufficient statistics to settle the relative frequency of the various growths which are not cancers with those which are; nor am I able to avail myself as I should wish of many tabular details in such works as Paget, and the painstaking paper of Sibley and Arnott, in the 'Medico-Chirurgical Transactions', owing to the incurable habit which pervades them all of mixing up epithelial diseases with cancers. From all these sources much that is valuable may be obtained in a general way; but definite statistics have yet to be accumulated which shall lay down clearly the relative frequency of all kinds of tumours, primary and secondary, with particulars of age, sex, occupation, hereditary and other antecedents, surgical and medical treatment and results. It would be a herculean task, and probably of little use after all. The main facts are apparent, and really as to the smaller items in such tables, statistics would be of little service. All such arrangements of disease must be more or less forced and artificial, and many a time would lead us away from the grand fact of the individuality of disease.

Omitting diseases of the alimentary canal, and limiting myself to such affections as may be called surgical, this much is plain, without refining too much, that cancer of the breast is the commonest of all primary tumours. All will agree that scirrhus is the most usual form of cancer in this rodent ulcer of the cervix uteri. Genuine encephaloid of the uterus is not common, and scirrhus is scarcely to be expected in such a locality. The distinguishing marks between epithelioma of the uterus and encephaloid are very plain at the outset, and probably all through. The great ulcerations of epithelioma with their hypertrophic edges contrast with the nodulated tumefaction and comparative absence of ulceration in genuine cancer.

Next to epithelioma of the uterus and appendages comes the same disease affecting the lower lip, with which we may group all the regions where skin and mucous membrane join.

After this great epithelial group, cystic tumours seem most frequent. The sebaceous on the scalp, the serous and its varieties in the breast, testis, and other glands, occur in the order given.

Fibrous tumours of the uterus, prostate and elsewhere, are tolerably common. Cancer of the bones, eye, testis, the fibrinous and fibroid tumours wherever occurring, and a host of odds and ends, now press forward for notice, and, like many other troublesome characters, may be dismissed with general and evasive answers. One man meets a few more of one kind, another of a second, and so on; no sufficient number can be collected for statistical purposes.

There was for a long time an idea that cancer and tubercle could not co-exist, nor was this idea destitute of a physiological foundation. The one is a cell-formation, in which there is great activity of life and reproduction, the other seems to be a disease in which the cells produced are all but devoid of vitality from the first, and are destitute of reproductive powers. No wonder, then, if their co-existence in the same patient were rarely found, and had long been deemed means of such infrequent occurrence as was supposed. In 173 post-mortems in cancer cases, tubercle of the lungs were found in 15; the form of cancer was encephaloid in 9, scirrhus in 5, and "epithelial" in 1; the form of tubercle was cretaceous in 4, crude and miliary in 6, and with cavities in 5. This conclusively settles a point which some were even still prepared to doubt.

The same tables afford a convincing proof of the hereditary nature of cancer, and of the coincidence of cancer and phthisis in the same family. I shall take the liberty of transcribing some of the more important conclusions to which Mr. Sibley has come, premising only that the class of cases from which his statistics are taken comprises most varieties of cancer and epithelioma, with, perhaps, a preponderance of external forms such as would naturally come to a surgical hospital which, like the Middlesex, had obtained a reputation for the treatment of cancer.

He states that, "in respect to age, it was observed that nearly all the patients had arrived at maturity, four only being attacked under the age of twenty years. The average age of those attacked with the disease in the uterus was forty-three and a quarter years; in the breast, forty-eight and a half years. The patients with epithelial cancer were somewhat older than those with uterine or hard cancer.

"2. Child-bearing appears as one of the predisposing causes to the formation of cancer; sterility being, to a certain extent, a protection against it. Among the female cancer patients, 55 out of 315 were single; and among the uterine patients taken separately, there were 12 single women out of 135. Of the married women, 86 per cent. among the uterine patients, and 71 per cent. of those suffering from cancer in the other organs had

5·2 among the uterine cases, and 3·89 among those with cancer in other situations.

"3. The duration of life was found to vary greatly according to the seat of the disease. In the cases of cancer of the breast, those who had been operated on lived [on an average] fifty-three months; whilst those in whom the disease was allowed to take its natural course lived only thirty-two months.

"4. As regards the hereditary nature of the affection, it was found that cancer was traced in 8¾ per cent. of the cases. There were five instances in which the patients had two cancerous relations, and in one very remarkable case five relatives were affected with cancer.

"5. Phthisis was traced in 37 per cent. of the families of cancer patients.

"6. In reference to secondary cancer, it was found that the disease was either local, or did not extend beyond the lymphatic glands in about half the cases. There were secondary tumours in 79 per cent. of the breast cancers; in 23 per cent. of the uterine cases; and in 54 per cent. of the instances of true cancer in other organs.

"7. A variety of diseases was found in the bodies of those dying with cancer. Tubercle was found in 15 out of 172 examinations.

"8. Cachexia appears to be rather an effect of ulcerations than the sign of a state of system preceding the evolution of cancer."

Cancer is found under two well-marked and very different aspects—the extremely acute and the extremely chronic; but by far the greater number of cases are of an intermediate nature, and may be ranged under two heads—acute like aspect, is a disease of early life as respects its primary development; but, as in most diseases, the acute type sometimes supervenes or is engrafted on the chronic. A slow-growing scirrhous tumour may take on an acute type and become encephaloid from an injury or without any assignable cause. Hence we meet with encephaloid growths at all periods of life. As a primary development, it is found most frequently in the eye and the bones of the child, and in the testes of the young adult. In all these situations it preserves, as a rule, its character as an infiltration, checked only and limited by fibrous bands natural or resulting from the compression of areolar tissue. In early adult life, also, it is met with in the female breast, but not so frequently as in any of the previously named organs. Later than the third decade it is seldom found except as a phase of scirrhus or as a secondary development, either after operation or in distant organs. But in both these forms it is by no means rare. A slow-growing scirrhus may receive a blow and take on a rapid development into encephaloid; or, without any known or noticed external irritation, it may change its rate of growth from many causes,—such as from the infiltration reaching a locality where areolar tissue is abundant and lax, or from the health becoming undermined and a general tendency to diseased action becoming established. Certain it is that when a scirrhous tumour is attacked with this change in its rate of growth, the consequences to the patient are most serious. Intense pain is almost sure to accompany the increase of the tumour—pain well characterised as intense, for it is as if the parts implicated were stretched and dragged to the utmost. This pain is little relieved when the skin gives way—when hæmorrhage, slough-the female breast is the most frequent site of scirrhus, it is natural that in it this change should be most frequently observed. It is, in fact, the commonest mode of termination where the disease is left to itself. Next to the breast, I have seen it oftenest in the cervical glands connected with the parotid.

All secondary cancerous tumours, whether in loco or at a distance, are invariably of the encephaloid type.

The characteristics of encephaloid are a soft elasticity, often simulating fluctuation, though more frequently resembling the elasticity of a vulcanized india-rubber ball filled with air; a tendency to irregularity, rounded outline, the lines or curves being abrupt, uneven in length, and mutually intersecting; the entire tumour resembling in shape a potato, Jerusalem artichoke, or truffle. While the tumour is comparatively small, and the skin which covers it is undistended, it rolls with much apparent freedom among the tissues, but, on careful handling, its connection with them can be traced in the form of bands stretching to neighbouring glands and fibrous structures; these bands, however, are loose and soft, and contrast markedly with the hard threads and cords of scirrhous tumours in similar situations; it seems as if they are only the natural fibrous tissues slightly shortened by their attachment to the encephaloid mass, whereas in scirrhus they are really thickened and condensed into firm unyielding cords and bands. Encephaloid tumours are large in proportion to their age, as compared with other tumours. Walshe says, and correctly, that no tumours compete with them in this respect but compound cystoid, and enchondromatous masses. I have removed an encephaloid mass from the breast the size of a child's head, and much larger tumours of this kind are found in connecgrowth of one or two lobules of the original tumour, and consequently, when this is the case, the outline of the mass becomes more evenly globular, and its elasticity generally softer. In such cases, also, the tumours are more encysted; the condensed areolar tissue, which forms a false cyst for them, is thrown into more or less regular forms, and becomes smooth and polished, as may be seen when it is cut into. If the breast be the seat of disease the nipple will be pushed down and will become unduly prominent (Pl. III), thus contrasting remarkably with its condition in scirrhus.

Encephaloid tumours are generally single, and while encysted, ever so imperfectly, they have comparatively little tendency to affect the glandular system. If the characteristic feature of encephaloid is elasticity, that of scirrhus is hardness—in extreme cases, stony hardness and toughness; this arises, as has been already stated, from the condensation of the natural fibrous elements of the infiltrated part. Just as the fibrous envelope of the liver is condensed by chronic inflammation, until the small, hard, tough whisky-liver is formed, so the ducts, fibro-areolar tissue, fascia, or whatever fibrous materials may come in contact with the cancer-cell in scirrhus, are gradually contracted and condensed into the hard, tough, gristly mass. In the breast, for example, as the infiltration extends, lobule after lobule becomes infected, the cells shoot along the exterior of the ducts, and steal along the surface of the investing capsule of the gland, irritating, contracting, and condensing all these fibrous tissues, and, in the end, incorporating them all into one mass of unyielding firmness. So powerful is this tendency to contraction that it sometimes, though unhappily with great rarity, gives rise to a natural cure progress of infiltration so delayed by this condition as to admit of the patient reaching a very advanced age—the tumour, meanwhile, getting smaller and harder until it became, in the end, a mere shrivelled remnant, no larger than a walnut. In ordinary scirrhus the hardening process and the further deposit of cells goes on *pari passu*, and the symptoms or signs that result are referable to one or other of these processes. From the former arise the hardness, the nodulated irregular surface, the contracted nipple, the adherent skin, and the firm bands which run, especially, along the direction of the lymphatics. From the infiltrating process, beside the increase of the tumour, there arises the very peculiar alteration of the skin, which is only to be found in scirrhus of the worst type, in which the skin becomes thick and coarse, apparently loaded with fat, but in reality infiltrated throughout its whole texture with cancer-cells.

Scirrhous tumours are, in general, fixed at an early period of their growth. Sometimes, however, they appear to roll about loosely for a time; but, even in such cases, abundant evidence of adhesions can be had upon careful examination; in fact, this appearance of looseness is the result of the previous condition of the parts, as it is only observed in pendulous breasts.

Scirrhus, as such, is always of very moderate dimensions, but it is not to be forgotten that between it and encephaloid there is no difference which cannot be explained by their respective rates of growth (in similar localities). Hence, it is by no means uncommon to find a tumour which has been of slow growth up to a certain period, suddenly change its rate of growth; along with this a change in appearance is observed; the small hard mass becomes in one point softer, more and rapid growth is identical with encephaloid. Only, in consequence of the previous alteration of texture, the parts are less able to bear distension, and they more quickly give way. This is the general mode in which scirrhous tumours terminate. After a variable existence in the slow-growing chronic state they suddenly become acute, and, like all acute forms of disease engrafted on previously existing chronic forms, they then run a more rapid and deadly course than those which had been acute from their origin. Scirrhus has a special tendency to poison the lymphatics; it shoots its contaminating cells along the ducts and into the glands, reaching the latter about the same time that infiltration of the skin takes place. In fact there seems a decided connection between the two. I have never seen a decidedly lardaceous condition of the skin without glandular poisoning; and *vice versâ*, enlargement and infiltration of the glands is seldom found, unless the skin is, or has become, the seat of cancerous deposit. Many tumours remain perfectly local to all appearance until the skin is touched, and in encephaloid, and, as will be seen, in many of the less malignant varieties of the cellular tumours, ulceration of the distended skin with infiltration of the margins of the ulcer is a necessary antecedent to glandular irritation, much less infiltration.

Of the general aspect and surgical peculiarities of the other groups of tumours special notice will be taken in the chapters on each of them. I shall now go on to consider more minutely the surgery of Encephaloid and Scirrhus, and their more marked varieties, with a view both to their identification and treatment.

CHAPTER III.

ENCEPHALOID CANCER.

In all surgical diseases which present acute and chronic forms, we rightly look upon the acute as the type. It is more rapid and energetic in its development; it exhibits the pathological elements in greater relative amount and with more active powers of reproduction; it either isolates itself in one spot from surrounding parts, or it spreads through them with alarming rapidity; it more quickly prostrates vital energy; it requires to be met with greater promptness and decision; and when it yields to treatment it leaves the system more free from taint than the chronic type of the same disease; finally, chronic ailments frequently light up with an acute and burning energy, rapidly destructive; and difficult, if not impossible to control.

In all these particulars, though not always in the same case, encephaloid cancer agrees with the acute type of disease. It grows rapidly, and is composed of cancer-cells of the purest type and greatest reproductive force. In some cases, such as the breast and eye of the young adult, it isolates itself in a sort of cyst, and is removable with fair chance of permanent recovery; in others, such as the parotid region of the old, it appears as an infiltrating growth, prostrating the strength of the unfortunate patient, developing with rapidity and killing by exhaustion and pain long before there is time

In a previous chapter I have sufficiently dwelt upon the cell-elements of encephaloid. It is the type of an actively growing, rapidly reproduced, but non-developing cell of the greatest possible deviation from the normal type. These cells are found under two very distinct conditions; either in masses imperfectly encysted, or where they are infiltrated among the areolar tissue. In the former and more favorable type the cyst is nothing more than a condensation of the natural areolar tissue which has been first pushed aside, then condensed and thickened by the pressure of the tumour. This cyst is of variable thickness, and possesses, more or less intimately, a vascular connection with the contained growth; generally this connection is greatest at one point, where the largest blood-vessel enters the tumour, but it exists in a slighter degree all over its surface.

These tumours are generally largely nodulated, as if composed of a number of roundish or oval masses not simply lying side by side, but fused together and running into one of irregularly rounded outline (Plates II & III). They are elastic, the larger nodules nearly fluctuating, the smaller more firm; generally they are moveable; sometimes they appear more so than their deeper connections warrant; when they get to a large size their softness increases; they distend the skin to the utmost before it gives way; they do not infiltrate it until it has given way and a superficial ulcer has formed—then the cancer-cells shoot into the margins of the ulcer, and the stage of fungation begins; but the skin may be stretched to the utmost over such a tumour, and still remain healthy. This tendency to push parts aside, to distend and stretch rather than to infiltrate is well seen in the drawing taken from the breast of Judith Garland (Plate II). In this case the skin was thinned to the utmost, the small veins and yet the nipple was large and pendulous. After removal, the skin was found perfectly free of any trace of infection; and the moment tension was relaxed, it shrank up into its natural size, and resumed its normal softness and whiteness.

The section of encysted encephaloid shows ovoid masses of all sizes up to a pigeon's egg, of soft pulpy consistence, of a pale grey colour, shaded or dotted with pink. The larger masses are soft and diffluent, the smaller comparatively firm; when their size is not greater than a pin's head, their firmness equals that of the soft points of scirrhus, or rather, the identity with encephaloid of the small grey specks which appear in the outskirts, and more recent and active parts of scirrhus is evidenced. As regards colour, it is of a blue grey when the granule is small, and according as the size increases white becomes more predominant, and pink dots make their appearance, indicating the site of blood-vessels; occasionally the tumour is so vascular that in place of dots or streaks, the entire surface of the section is distinctly pink. In such cases of vascular encephaloid the sense of fluctuation may be so great as to lead to errors in diagnosis; they may be mistaken for abscess or cystic disease, just as the converse error may also be made. It is not common to find the entire of any large encephaloid tumour possessed of quite uniform consistence; in parts there will be accumulations of soft pulpy material, composed of an immense congeries of cells held together by meshes of the finest vascular tissue, and surrounded by the curving lines of displaced areolar tissue; in other parts there may be bands and streaks of hard and condensed fibrous tissue with interspaces more or less angular filled with small granules of grey cancerous material, similar to the less chronic portions of scirrhus; in other cases again, ence tions from one to the other can be studied; such specimens are by no means uncommon in the later stages of ordinary scirrhus, and they prove clearly that there is no fundamental difference between it and encephaloid, other than that between a chronic disease and an acute development of the same.

However the encysted encephaloid may originate, when it is allowed to run its course without the interference of the surgeon, it terminates by ulceration, sloughing or hæmorrhage, or by all combined. The tumour enlarges, the distended skin gives way, an ulcer forms with cancerous margins and a fungating surface; profuse and foul discharges wear away the patient's strength, the fetor assisting by destroying all appetite for food, and the pain depriving the unhappy patient of rest; large masses of the softer portions of the tumour lose their power of obtaining nourishment and slough almost without notice, leaving irregular chasms and perhaps opening blood-vessels of sufficient size to give rise to serious or even fatal hæmorrhages; and if the unhappy victim survives the immediate injury done by these losses, the increased suppuration brings on a rapidly fatal hectic fever.

As soon as the skin becomes implicated the nearest glands enlarge retaining at first their oval outline; but very soon they become nodulated and irregular. These secondary growths vary much in size; where the glands are situated in a confined space like the axilla, want of room checks the deposit, but where there is room to expand, as in the abdomen, they acquire at times an enormous size—thus in cancer of the thigh or of the uterus or testis, the deep abdominal or lumbar glands are sometimes found as large as a child's head—strings of them can be felt through the emaciated walls of the abdomen, and sometimes the enlargement of the liver by cancerous deposit can also be felt in the same way. In cancer and intrathoracic become successively implicated, and finally deposits form in the lungs. To enumerate every place where secondary deposits may be found, would be to give a list of all the organs and tissues of the body; even in the muscular tissue of the heart a nodule of cancer has been found.

In the form of encephaloid, known specially as fungus hematodes, death almost invariably results from hæmorrhage. This is a natural consequence of the structure of this variety.

When the skin has become so distended as to give way, the cancerous masses, freed from its firm resistance, accumulate and grow with great rapidity. They are then possessed of the loosest texture; fine areolar tissue and large quantities of minute blood-vessels permeate and hold together masses of spherical cells, just as when the absence of a portion of calvarium and dura mater allows of the rapid proliferation of brain-substance, so in the fungating stage of cancer we see soft pulpy masses shoot out from the ulcerated opening in the skin. From their great softness and vascularity hæmorrhage is readily provoked and will go on from day to day, at first in small quantities and at intervals, afterwards almost incessantly until the patient sinks enfeebled by the steady drain. I need not detail the symptoms which announce the approach of death by hæmorrhage. The pallor of the surface, the clammy sweat, the yellow and waxy look of face and hands, the sunken yet brilliant eye, the agitation and restlessness, the loss of sleep, or disturbed and fearful dreams, the fluttering dicratous pulse and scarce perceptible impulse of the heart, the hiccough and vomiting all announce the approaching syncope; black masses of coagulated blood and cancer-tissue protrude from the ulcer in all sorts of fantastic shapes; and from

Sometimes, as stated above, soft masses of cancer seem to lose all power of continuing their growth and keeping up their nutrition; suddenly a large slough of the most prominent part of a tumour will spontaneously come on, and in a few days a large chasm will take the place of the projecting encephaloid mass. After such an event, it is possible, though very rare, for the ulcer to cicatrize temporarily and for the patient thus to obtain a respite. Sloughing of a scirrhous mass sometimes results in a temporary cicatrization, but when encephaloid perishes in this way it is only in its central portion, and there is always left an active periphery of diseased tissue to carry on the fresh formation of similar structures in the room of those that have perished.

I come now to consider the second form in which acute cancer presents itself, namely, as an infiltration. The purest type of such a condition is to be found in the development of cancerous tumours at the side of the neck, springing from glands in the parotid region. These occur at an advanced period of life in persons of a broken down constitution. They spring up suddenly, either without antecedent symptoms or in a small and scarcely noticed gland which has remained enlarged, but indolent for years; they grow with wonderful rapidity, pushing their way into the interstices of the muscles; they implicate and absorb into their substance all the neighbouring glands, retaining more or less of an even globular outline, but flattened and kept down by the strong fasciæ of the part; the skin also, which, though fine, is here attached to subjacent parts by numerous bands from its inner surface, does not admit of as much distension as in other parts where its texture is naturally less elastic. These infiltrating tumours are firmly elastic, smooth, and little, if at [illegible] surface although along [illegible] of a dusky red, much distended, but not actually adherent in any part until ulceration supervenes. The pain accompanying them is fierce and unceasing, preventing sleep, wasting the patient's frame to the last pitch of attenuation, and wearing him out by sleeplessness and exhaustion in the course of a few months, generally before the stage of ulceration or sloughing has been reached. It would seem as if all vital energy had been transferred from the patient to the tumour, its life, development, and growth are so vigorous, while he wastes away daily and seems unable to think or act from the severity of his sufferings.

Fungus hematodes.—This name, originally given by Hey to a peculiar condition of encephaloid has, in the course of years, departed somewhat from its original signification.

Hey gave the name to those cancers which on section presented a resemblance in some parts of their structure to clotted blood; in fact he described as a variety what was only an accident. The soft and brain-like substance of an acute cancer suffered from some cause a laceration, and a quantity of blood was effused into the rent, and slowly made its way by infiltration through the soft masses of cancer-cells round it. A more or less imperfect organization of the clot ensued and its fibrinous constituents became gradually converted into inherent parts of the original tumour. This gave the entire mass a streaked and spotty appearance, and stained it more or less with the colouring matter of the blood. To this condition of acute cancer Hey gave the name of fungus hematodes. Later writers transferred or extended its signification to the bleeding fungus which shoots forth with alarming rapidity from the open cancerous ulcer. From whatever variety of encephaloid, and it is strictly to be looked upon as an extreme example of acute development of cancer-tissue. The more rapid the growth and accumulation of cancer-cells, the more loosely are they held together; or to speak with greater correctness the areolar tissue which holds them together is of the greater delicacy, gives way the more readily and allows of the escape of blood. Such is the simple explanation of the phenomena of fungus hematodes, whether the term be used in the original acceptation of Hey or in its more ordinary modern meaning. Some who do not use a careful discrimination of terms apply the word to all soft forms of cancer. Against such loose use of the word Walshe very properly protests.

The liability of regions and tissues of the body to encephaloid rather than scirrhus varies according to the age of the patient. Thus, the breast in the female, and the testis in the male, are liable to it during the most active period of their functions, namely, adult life. The bones in the young, up to the time of their perfect ossification, are also its frequent seat. Some explanation of these facts may be found in the greater activity of the natural vital processes in these parts of the body at these periods. Where healthy action is most rapid, it is not unreasonable to suppose that diseased action, when it usurps the ground, will be also rapid. In corroboration of this, we find that the bones cease to be subject to any form of cancer, after the age of twenty-one or thereabouts. Cases of scirrhus of bone occurring later, seem to be propagated from periosteum and not to be *ab initio* cancers of bone. The breast is rarely indeed the seat of scirrhus, while its normal functions are liable to be called into active exercise. After that period scirrhus is the rule; encephaloid the rare and signal exception as a primary in the museums of the United Kingdom there is a remarkable absence of specimens of such a form of growth. Most of those labelled as scirrhus of the testis, are examples of cystic disease, with either cartilaginous degeneration of the cyst-wall or with a fibrinous material within the cysts, the result of repeated intracystic hæmorrhage and organization of the clot. Now that these forms of disease are known and can be recognised, the absence of genuine scirrhus of the testis is most remarkable. There is a similar deficiency in regard to scirrhus of the tongue. In both cases I have no doubt the great vascularity of the organ determines the morbid action in a direction opposed to so slow a growth as scirrhus.

Encephaloid cancer is frequently found in connection with scirrhus, in which case the scirrhus is the primary affection, and the acute form must be regarded as a phase or stage of the chronic. When encephaloid is thus engrafted on scirrhus it is almost invariably as a result of injury or other exciting cause of activity. Thus a slow-growing scirrhus of many years' standing may receive a blow, by which its chronic condition may be suddenly changed into one of rapid growth, and a large elastic mass of encephaloid may be quickly generated.

The poisoning of glands, and the tumours which appear in a wound after removal of primary cancer, together with the secondary deposits in such organs as the liver and lungs, all partake more of the acute or encephaloid type, whether the primary disease has been scirrhus or encephaloid.

Encephaloid of the breast.—The breast is not often the seat of acute cancer as a primary affection. In England it is rarely met with. In Ireland and France it is slightly more frequent of the English may give a tendency to fatty deposits in the gland, which are at variance with pure encephaloid; while the more lively blood of the Celtic races may occasionally induce the rapid and early development of the acute form. This is, however, merely a supposition, which, in the absence of any other explanation of the fact, I venture to throw out. The fact itself is inferred from observation of cases of encephaloid in Ireland; secondly, from Velpeau's mention of cases in France; and, thirdly, from the very meagre notice of this form of cancer of the breast in English writers on the subject.

Acute cancer attacks the breast at a much earlier age than scirrhus. From twenty-five to thirty-five years of age is the most common period. Earlier it is very rare, later not quite so common. After forty-five scirrhus is almost invariably the form in which cancer appears in the breast. The greater functional activity of the organ in early adult life is quite enough to account for the acute type being found to prevail at this period. There is a manifest connection between the condition of the gland and the forms of disease it is liable to. Thus, in early adult unmarried life, the chronic mammary or adenoid tumour is the rule; in early adult married life there is great freedom from organic disease; but, when cancer unfortunately arises, it is of the most acute type; while, in middle age, when the gland subsides into inactivity, chronic cancer is far more common. Probably, in all cases, the amount and repetition of injury has something to say to the form of tumour, but while we must fully acknowledge the necessity of some such exciting cause for all tumours, there is reason to believe that the condition and functional activity of the gland modify the action of the cause, and determine the form of t[illegible]ult-

The following cases of encephaloid of the breast are given as examples:

1. *Primary Encephaloid of left breast—Growing at intervals for nineteen years—Removal—Permanent recovery.*

2. *Encephaloid of breast, springing up in a small chronic tumour of six years' duration—Removal—No return—Death in two years from Phthisis.*

3. *Encephaloid of breast—One year and three months' duration—Supervention of Fungus Hematodes—Death from hemorrhage.*

Case 1. *June,* 1856.—Margaret Murphy, aged forty-three, a widow, with two children, the youngest twelve years old. She looks healthy, but has a melancholy expression; her hair is very dark, and her eyes of a deep blue. Seven years ago she had a bad rheumatic fever, which was accompanied by some cardiac mischief, for which she was leeched; her heart is now feeble, but free from valvular disease. On two occasions she has been temporarily insane. Each attack lasted for about a month. The first occurred four years ago, and the second after three months' interval. She never had a milk abscess, but had a fissured nipple and some temporary "flagging" in the breast, while nursing her second child. When she was twenty-three years of age, a little tumour, the size of a pea, was observed about two inches below the nipple. In ten years' time it had only reached the size of a walnut, when a second was discovered near it, as large as a marble. Both tumours were moveable, rolling apparently free among the tissues, and not seemingly connected together, until a close examination revealed a band running from one to the other. Darting pains were long felt in the application of leeches removed them once. There has also been constant tenderness and soreness to the touch, with a continued dull heavy aching pain. During the last year the growth of the tumour has been very rapid, and the pain so constant and severe as to compel her to leave her situation. The tumour is now (June 13th, 1856,) the size of a closed fist. There is a general tendency to a curving outline, with four or five irregularly distributed nodules; it is rather firm and moderately heavy; it is elastic; it is quite moveable on the muscle. There are no enlarged glands in the axilla, at least, none poisoned by infiltration; one is slightly enlarged from irritation, but it retains its shape, (twenty-four hours' rest in bed lessened its size.) The skin over the tumour is thin, very much stretched, and with minute dilated veins over its most prominent parts, as occurs in all cases of extreme distension from any tumour. The nipple is not retracted, but is, on the contrary, extensible and soft. It is not chapped or cracked, nor is there any discharge from it. The skin can be moved on the tumour at all points, except where the ducts enter. The opposite breast is shrunken, and has a small nipple. She says the pain has always been greater for two or three days before the menstrual period, when the breast has become more full. The greatest and most steady increase of the tumour seems to have been during the last nine months; previous to this time it appears to have grown by fits and starts. The general health is admirable; there is no sign of wasting, or what is called cachexia.

The tumour and entire breast were removed by me on the 13th of June, 1856, in the ordinary manner. The distended and discoloured skin at once resumed its natural healthy aspect and texture. The subjacent tumour was subderately firm, rather dry, but yielding an abundance of fluid of a creamy sort on being scraped down. It was lobulated; the lobules of small size were grey; those which were larger were white, and for large lobules of encephaloid unusually firm; they were streaked with vessels. In one spot a black stain was imparted by some remains of an effusion of blood, which had made for itself a false cyst. The brain-like matter, white and grey, was contained in a multitude of interstices in the natural fibrous tissue of the breast, which had been pushed aside and condensed into imperfect cysts. These false cysts, though thickened, were generally free from any cancerous taint as regards their walls. The fibrous envelope of the gland had also resisted infiltration, and appeared quite free from cancer-cells. The skin also was perfectly free from them. Only along the ducts leading to the nipple was any cancer-cell found beyond the confines of the tumour. This was composed of cancer-cells of the oval or roundish encephaloid type, arranged more systematically than usual, with fine areolar and fibrous tissue intervening and intersecting the subdivisions of the tumour. In this case, all the skin but that close to the nipple might have been left.

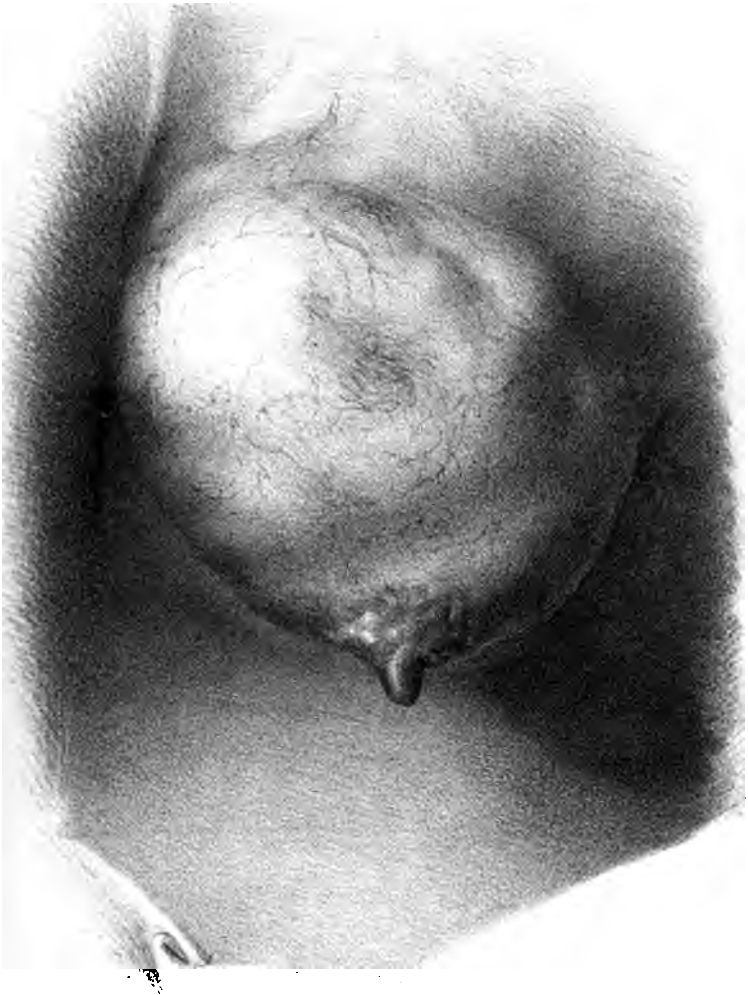
The case progressed favorably. The wound healed with rapidity, and the gland in the axilla quickly subsided. I saw her subsequently on several occasions when she came to report herself to me. The last was four years after operation, when there was no trace of relapse. She had grown fat, had lost much of her melancholic look, and enjoyed excellent health. She promised to come back to me, if at any time the tumour should return, and as I have not seen her since, I am inclined to think that the cure has been permanent, seeing that after four years there was no relapse

It may not unfairly be asked how I can call a tumour of nineteen years' duration acute, and what points of analogy encephaloid cancer can, in such instances, bear to the acute type of other diseases; but a careful examination of this case shows that the real period of active growth in the tumour was much less than the term of existence. From first to last it grew by fits and starts; it had short periods of active growth, long intervals of torpor and quiescence. During the former large additions were rapidly made to its size, and during the latter a process of slow condensation may fairly be supposed to have been at work. We see the results of such a process in the greater firmness of the section, and in its greater dryness—greater considerably than encephaloid of more uninterrupted growth presents to our observation. I do not think that the term acute is less applicable to the disease under this phase than it is to a severe and sudden attack of bronchitis supervening in a patient who suffers from habitual delicacy of the bronchial membrane, not amounting to bronchitis.

Whether the chronic nidus of the disease was originally cancer, the chronic mammary tumour or simple inflammatory hypertrophy of the gland, can only be matter of conjecture, inasmuch as the early history of the case was obtained from imperfect descriptions given by the patient, and in respect of so delicate a matter of diagnosis, no conclusions can be drawn from so uncertain a source.

CASE 2. *Encephaloid of right breast, springing up in six months from a small chronic tumour of six years' standing. Removal; no return. Death from phthisis in two years.* (Plate II.) — Judith Garland, aged sixty-five, a healthy looking woman, naturally thin and pale, was sent to me by

PLATE II



1854, with a tumour in her right breast. This had existed five years and a half from the time it was first noticed, before it showed any disposition to active growth. In that period it had only enlarged from the size of a hazel-nut to that of a walnut. In the six subsequent months it grew to the size of an infant's head, giving her occasionally some pain, which shot through it towards her back. These darts of pain were never severe, and not very frequent. The usual signs of cancerous cachexia were absent. The tumour, as already stated, was of the size of an infant's head, evenly lobulated, or nodulated, moderately heavy, elastic, and moveable; the general outline spherical, with smooth lobules fused into the principal mass, giving it a curved, wavy outline. The integument was tightly stretched over it, but could be pinched up from it except on the most prominent point, where it was full of minute blue vessels, and looked on the point of giving way. The nipple, and a portion of seemingly healthy gland, lay rather below the bulk of the tumour; the nipple loose and pendulous, and apparently in no way attached to the tumour. There were large blue veins coursing over the supra-mammary or sub-clavicular regions on both sides, but much larger on the right. There was a very small kernel, of suspicious nature, in the upper part of the left breast, at a point corresponding to the site of the original hard tumour in the right breast, from which the large one sprung. Yet there were no enlarged glands in the axilla, nor under the clavicle, and the signs of cutaneous infiltration were altogether absent. She was tranquil, and complained of nothing but the tension of the integument, and the weight and discomfort of the tumour. As it was manifest that the skin must very soon give way, and an open fungating sore be produced

The wound healed kindly, and the woman left hospital on the 13th February, 1855. I saw her again at intervals, but, missing her at Christmas, 1856, I heard from a trustworthy source that she died in October, 1856, nearly two years subsequent to the operation. There was no local return of the cancer in any form. Her death was attributed to decline, whether produced by tubercular or cancerous deposit in the lung I had no opportunity of ascertaining.

In this case the patient's life was considerably prolonged by the timely removal of a tumour which was on the point of ulcerating; had the disease been allowed to progress, her death would probably have taken place in from two to three months, and it would have been preceded by much discomfort and suffering. Prolongation of life for at least a year and a half, and a death comparatively painless, were no inconsiderable boon to her.

An examination of the tumour after removal showed it to be a specimen of soft encephaloid, in masses of ovoid outline, white, and brain-like in consistence, and composed of large cancer-cells of oval outline, delicate membrane, and large nucleus; there was also abundance of free nuclei and granular oily cells. From the cut extremities of the healthy portion of mammary gland removed with the tumour, a quantity of thick dark-green fluid, like paint, exuded. This, when examined, proved to be composed of blood-corpuscles in a state of disorganisation, some oil-globules, and sebaceous matter. It had a very alarming appearance, what some people called "highly malignant," but the microscope at once showed it to be of little importance. In certain forms of dysentery of children a similar tenacious green material is passed from the bowels, which is also mainly composed of

PLATE LI

microscope, seemed perfectly free from all cancerous taint. Through the substance of the encephaloid tumour several cheesy deposits of large size were scattered. These were the remains of cells, but whether of the original proper gland-tissue, or of the adventitious cancer-cells, I cannot say. At the time I had no idea what they were, and I regret I did not examine them carefully in order to ascertain the point. Where such deposits occur in large masses I believe them to be the remains of the proper gland-tissue. I have not found evidence of a cancerous origin in any yellow deposit of sufficient size to be visible to the naked eye. As far as I am aware, the oily remains of cancer-cells are more scattered and mixed up, or infiltrated among the living cells, and do not aggregate in masses.

Case of Encephaloid of Breast ending in Fungus Hematodes. (Plate IV.)—Mrs. Irwin, a respectable woman, æt. 57, of delicate constitution, and, from what I could gather, reduced in social position below what she had held in early life. She was also subject to much mental distress. Her right breast had always been smaller than the left; it had, moreover, been the seat of a milk abscess in the year 1847 or 1848, for which it had been lanced. She had not, however, noticed any special hardness to remain after the healing of the abscess. About Christmas, 1858, she got rather a severe blow in the breast. Soon after this she perceived some hardness in it like the weed. For this she applied hot stuping by means of wooden bowls. In the summer of 1859 she consulted a well-known female quack, who, with wisdom and caution unusual to the genus, refused to meddle with the tumour in any way. After this she spent her time consulting various surgeons on the subject, most of whom advised her against an operation; among others Mr. Adams and Mr. Wilmot, and Dr. Hardy, all concurred in the expediency of not meddling with the tumour. At last she came to me on the recommendation of the Rev. Mr. Mason, and I admitted her into the Meath Hospital, March 10th, 1860, with the sole view of arresting a dangerous hæmorrhage which was continually bursting forth from one or other of two fungating ulcers which had lately appeared on the most prominent parts of the tumour. For this purpose I injected a few drops of Pravaz' solution of the perchloride of iron through Coxeter's syringe. The effect was instantaneous in arresting the bleeding for the time; but successive hæmorrhages came on at intervals of a few hours. Her friends were not satisfied, I think, at our abstinence from operation, and removed her from the hospital on the 15th. The rough motion of the car brought on fresh hæmorrhage, and in ignorance of how to control it, cloths and towels were in succession piled upon the tumour, until at last she sank from sheer exhaustion on the night of the 16th. Mr. Connolly executed a magnificent drawing for me of the state of this breast during her stay in hospital. The irregular spherical outline of the breast, with lobules of greater size just about to burst through the distended skin, and in two places the fungating open sore where the skin had given way and masses of the tumour had protruded—all are well seen in the drawing.

Encephaloid cancer may be found as an infiltration in the subcutaneous areolar tissue. In most cases it will there form for itself some kind of false cyst, and will assume a tuberiform outline. This was well exemplified in a case sent to me by my friend Dr. Quinan. The patient, a sailor on board a revenue cruizer, aged about twenty-five years, healthy and well fed, had received a prick from a fish-amiss, but a small rolling tumour in the site of the wound. It was nodulated, firmly elastic, and about the size of a hazel-nut. I removed it February 8th, 1858. The wound healed by first intention. The disease has never returned. Inspection showed it to be a good specimen of encephaloid. It was of a grey white, with a few intersecting fibrous bands. It was soft when pressed or scraped, and yielded abundance of creamy fluid. It was composed of well-marked cancer-cells of the oval or acute type. Both to the eye and under the microscope it was undoubted cancer; its outline also and feel corresponded with this class of tumour and with no other. Dr. Quinan has seen him frequently since and assures me he is free from any return of the tumour. This continued immunity after six years is highly satisfactory.

Primary cancer of the bones is pre-eminently of the acute type, and runs a rapid and destructive course. It is a disease of early life, as might be inferred *a priori* for physiological reasons, while the bones are developing, while the cartilaginous element is in process of removal, and the true tissue of permanent bone is being laid down in its place. This is the period of frequency for morbid actions in bone. Not only are they most frequent during this time of life, but their energy is great, in proportion to the natural activity of growth and change in the part. Enchondroma, the erectile tumour of bone, cystic disease, and cancer—all more or less affect the early period of life. Enchondroma and encephaloid, the most active of the morbid growths, are at the same time most prone to attack the very young. Encephaloid of the femur has been observed as early as six months after birth. It is seldom found after puberty; never, I believe, after twenty or twenty-one years of age.

lowing on these is a sensation as if the limb was weak and unable to bear the weight of the body. Soon a tumour of perceptible dimensions is observed. This is hard and deeply seated at first, with a blue vein or two coursing over it. Then the enlargement increases, preserving a globular outline at first, but soon becoming unevenly lobulated. Its hardness decreases and elasticity takes its place, in the most prominent points at first, but after a time more or less over all the tumour. The patient now is not only unwilling to bear any weight on the limb, but is scarcely able to lift it from the bed. He can still, however, rotate or abduct it, the heel remaining supported. This sensation of weakness is well founded, for some preternatural mobility of the bone is observed in the situation of the tumour. When the foot is grasped and rotated the surgeon perceives a certain amount of tremulous motion in the tumour, showing that all the impulse given by his hand to the lower part of the bone is not transmitted to the articulating surface above. With these signs of degeneration of bone-tissue there is generally more or less severe suffering, loss of rest, and emaciation. Large blue veins in abundance course over the tumour, the limb below is much wasted, and the little patient becomes hectic.

Amputation of the thigh in its upper third—at all times a most serious operation and of the gravest import to life—is not, as a rule, admissible here. Section of a cancerous bone, even at a distance from the site of the cancer, is seldom successful; relapse soon occurs, even if the parts ever heal.

Examination of the bone in these cases shows a high condition of disorganisation. The laminated tissue is broken up. Large masses of soft cancer-cells force asunder the bony plates and fill up the Haversian canals. According as the on by rapid degrees they cause atrophy of the osseous tissue, which soon comes to lose all regularity of appearance, and is found in fragments and flakes of various size, thickness, and direction. When this condition extends through the entire thickness of the bone, manifestly all strength, and power of supporting weight, or regulating motion, will be lost, and preternatural mobility or even fracture of the bone may arise.

I believe the encephaloid deposit may take origin in the periosteum, in the cancelli, or in the compact tissue, as also in the medullary canal. The form of worst prognosis is, for very evident reasons, where it begins in the periosteum. In other cases removal of the entire bone may possibly be expected to result in a cure; while, where periosteum is primarily implicated, the disease will spread rapidly through the softer tissues surrounding the bone, and will speedily render all operations nugatory. Still, if a case of encephaloid of periosteum were early recognised, I conceive that amputation in the continuity might have a successful issue. I know of one remarkable instance of recovery which occurred in the practice of Professor Hargrave. Some account of the case is found in the catalogue of the Museum of the College of Surgeons. The patient, a young man, has survived at least fifteen years after amputation of the femur in its upper third, for encephaloid cancer in the middle and lower third of the bone.

The remaining operation, disarticulation of the femur at the hip-joint, is rarely done and rarely succeeds. The operation, at all times most formidable, loses none of its risk when applied to cancerous disease; hence it is rarely attempted, and rarely succeeds. Some years ago I saw it performed in Paris for encephaloid disease of the femur; the little patient made gallant fight for life but unsuccessful case of disarticulation of the femur performed in Paris up to that time, none having succeeded. Whether this singular ill-fortune, mainly due to the then bad drainage and ventilation of French hospitals, has since been reversed I do not know. Most of these cases were cases of encephaloid cancer. I have seen successful results of this formidable operation elsewhere, so that it may at least be taken into consideration in cases that appear suitable to it.

Encephaloid of the testis.—There is, perhaps, no form of cancerous disease which requires us to bring to its consideration nicer powers of discrimination than that which attacks the testicle. Much confusion has hitherto existed, and still exists, as to the diagnosis between tumours of this organ. A cursory inspection of our pathological museums will prove this to be no calumnious assertion. Thus, in the College of Surgeons' Museum, a large number of specimens are labelled and indexed as Fungus hematodes of the testicle. Of these, the structure of seven can be still investigated without any doubt; the remainder are so altered by age and spirit as to be useless. These seven are labelled F. *b*, 435—441 inclusive; and in the catalogue are termed either fungus hæmatodes or fungoid disease. The names of Cusack, Kirby, Todd, and of other surgeons of eminence, are appended to the particulars of these cases. The first is an excellent example of what I have named fibrinous disease of the testis, arising from successive hæmorrhages into the organ, and composed chiefly of concentric layers of fibrine in various stages of solidification. I shall quote the description of the tumour at full length in the chapter on this disease. The disease had been in progress for six years; the tumour was globular in outline, or rather retained much of the form of the healthy testis; it was remarkably solid

The second specimen, F. *b*, 436, is an example of cystic disease, which, having been punctured for fluid, had shot out a bleeding fungus at the point of puncture, such as will spring from any cyst. The third, F. *b*, 437, is a similar tumour, minus the fungus.

F. *b*, 441 resembles 436, but with the additional aggravation of much hæmorrhage arising from several fungating points; in all these the glands were uninvolved, and the disease strictly local. In the last three the cystic nature is evident from the description of the tumour on dissection; in all four the characteristics were not those of encephaloid, as they are now described. In the other three instances, numbered F. *b*, 438, 439, 440, the description is plainly that of fungus hæmatodes, and in these we find the lumbar glands implicated.

F. *b*, 438, Fungus hæmatodes of the testicle, with extensive contamination of the adjacent structures; two soft flocculent fungi appear on the surface of the organ. The new deposit in the interior is of a brownish colour, and very firm in texture, except towards its centre, in which situation it is slightly softened; the tunica vaginalis and albuginea are closely united together. The cord is considerably enlarged, lobulated externally, and identical in structure with the testicle. The corresponding inguinal glands also participate in the disease; they are consolidated together, so as to form one irregular tumour, which is closely adherent to the inner surface of the skin, an oval piece of which structure has sloughed away, and a malignant fungus protudes through the opening thus made. The lumbar glands were similarly affected.

F. *b*, 439, Fungoid disease of the testicle; its chief features ately above it there exists another tumour equal in size, formed by the spermatic cord and iliac glands. In the lumbar region the glands present every character of fungus hæmatodes, and were so considerably enlarged as to compress and flatten the abdominal aorta.

F. *b*, 440, Testicle affected with fungus hæmatodes; it is not much enlarged; in the section the cerebriform deposit is seen to exist throughout its entire extent, but there are no cysts, nor is there any appearance of softening; the tunica vaginalis is only partially adherent. The spermatic cord is thickened and tuberculated in its whole length. The lumbar glands formed a tumour as large as a child's head, which during life could be felt through the abdominal parietes.

I have found many other instances on record where large tumours of the testis have been named fungus hæmatodes on insufficient grounds. Most of them are cystic tumours; some, fibrinous; and not a few a combination of the two, that is to say, the fibrinous deposit is found contained in cysts. Yet, rightly understood, the signs of encephaloid of the testis are unmistakeable, and it will surely be conceded that the confusion of a most malignant disease with those which are not so destructive to life is no unimportant error.

Encephaloid cancer of the testis presents similar characters to the same disease elsewhere; it grows rapidly, much more so than any other solid tumour; it is irregularly lobulated or nodulated; it is softly elastic, in points prominent, and almost fluctuating; it is not heavy—in fact, it is, for its size, one of the least heavy of tumours in this region; it is lighter than chronic sarcoma; it is lighter than cystic disease; it is lighter than fibrinous, or fibrino-cystic disease; it can scarcely be mistaken for venereal testicle, which is never described by Mr. Hamilton, and which is extremely hard and heavy; the mixed strumous and venereal it might be mistaken for in later stages, were it not that the glands in the groin and abdomen are rapidly poisoned by encephaloid. Its lobulated or nodulated outline, its elastic softness, its moderate size and weight, its early poisoning of the glands, and rapid passage into a fungating condition, with the great and early inroads which it makes into the general health of the patient, should enable us to identify it. I lay no stress on the livid and thinned integument, the ramifying blue veins, the dragging sensation in the loins and cord, or the severe pains which undoubtedly accompany its progress, because it possesses these characters in common with most other tumours; nor will the age of the patient assist us much, as all morbid growths in the testis are more common during the early adult, and middle periods of life, when the functional activity is greatest. I would here remark, lest elsewhere it might seem an omission, that scirrhus of the testis is to me an unknown disease. I have never met with a specimen in hospital or museum, and, from the great vascularity of the testis, I can readily conceive that such a form of cancer is not likely to occur.

Encephaloid of the testis commences as a small tumour rather in the body of the gland than in the epididymis. With this tumour there will be some sharp stings or darts of pain. The body of the gland is more or less hard, and may be painful to the touch; there is a feeling of weight, and some dragging of the cord is complained of.

Some slight effusion into the tunica vaginalis has also been spoken of as a concomitant symptom at this period. (Walshe.) It is a remarkable fact, and can scarcely be disease of the spleen, liver, ovary, and mesenteric glands. It appears to me an evidence of the specially irritating nature of the cancerous deposit.

All the above symptoms soon increase. The tumour enlarges, becomes rounder, distending the tunica albuginea, until, at last, it gives way, and the growth becomes, as it were, an internal fungus into the cavity of the tunica vaginalis; irregular nodules now spring from its surface, and the skin becomes distended. Effusion into the tunica vaginalis may now appear, if it has not done so previously; at the same time the glands in the groin and abdomen begin to enlarge, and the pain and dragging sensations increase in intensity. I have remarked that ulceration of the integument is rather early of occurrence in this disease, as compared with others, bulk for bulk. This is natural, as the mere distension of skin will go on to a less extent in diseases which have a tendency to infiltrate it, and so break down its texture and power of resistance. This tendency to early fungation is a valuable diagnostic mark between cancerous and cystic formations. I am bound, however, to state, that in this I differ from Mr. Walshe; possibly some of the difference is founded on the increased accuracy of diagnosis since his book was written. Eighteen years ago many tumours were classed as fungoid which are now not so classed, and as the genuine encephaloid is rare, and those much more numerous, it is not surprising if they have given a tone to his descriptions in this particular.

Fungus hæmatodes is the most common form of encephaloid in the testis, whether we use the term as an effusion of blood into the cancerous mass, or as a fungating ulcer. The majority of tumours of the testis of whatever nature have this hæmorrhagic tendency; the fibrinous testis, the fibrinois tainted with this tendency. We see it also in a totally different class of tumour—the hæmatocele.

In the section of an encephaloid testis it is rare not to find a projecting nodule with spots of great vascularity, not merely pink in hue, but shaded with dark-red spots, or with radiating lines of red, starting from a highly vascular centre. The whole mass may not be, and generally is not, of this character, but a portion of it is almost always so—such as the seat of the last injury, or the most projecting part of the tumour. Spots of melanosis are also sometimes found here. Secondary deposits of cancer frequently, if not invariably, accompany encephaloid of the testis, and appear at an early period. The lumbar and inguinal glands, and the liver, are the principal seats of this complication. Whether it be possible to remove the organ at an early period before these systemic poisonings occur, is more than I can say from personal experience. The disease is not only difficult of diagnosis, when sufficiently small for safe removal, but the patient is scarcely likely to submit to an operation that all men will naturally shrink from; this too at a period when there seems to be but little amiss, and when he will expect various remedies to be tried before operation be resorted to. It is remarkable, however, that some kind of secondary deposits in internal organs follows diseases of the testis, which are never included among malignant growths. Thus, strumous testicle is associated with tubercle of the spleen, pancreas, and liver. In the last-named viscus it occurs either disseminated or in round patches, which are scarcely to be distinguished from Farre's tubers. The only difference to the unaided eye, and that by no means constant, is that the centre of the strumous tuber is not depressed as in the umbilicated minute cells of a class analogous to the cells of tubercle, but evidently possessed of a vitality and energy greater than tubercle-cells; they are, in fact, cells of organising fibrine, cells which only differ from tubercle, in that the latter are aborted and incapable of reproduction. A remarkable case is given by the late Mr. Smyly of this form of secondary deposit in the liver, following the apparent cure of a strumous testis by pressure. The particulars are found at full length in 'Dub. Hosp. Gaz.,' vol. v, p. 42, among the reports of the 'Pathological Society' for Dec., 1857. The patient, a gentleman aged forty-five, had been the subject of an enlarged testis on the right side; this, under treatment by pressure, had been reduced from the size of a goose's egg to the natural dimensions. After a year and a half of comparative health, broken only by frequent attacks of severe diarrhœa and vomiting, he received a severe mental shock, which was followed by jaundice, of which he ultimately died after a further lapse of three months. The testis was found atrophied, its apparent equality in size with the sound one being due to the presence of a large tubercular mass. The liver was covered with slightly raised tubera, undepressed in the centre, firm to the touch, of a buff-yellow colour. On making a section of the liver, it was found studded with these tumours, of every size from that of a millet-seed to that of the kernel of a nut. They were both more numerous and more variable than cancerous tubera, and did not attain as large a size. The substance of the liver was brittle and highly congested. The pancreas was studded with tubercles more nearly resembling cancer. These had pressed on the ductus communis, and had caused the jaundice. The section of these tumours was dry. Here is a case of malignant strumous

True encephaloid of the testis is a rapid disease, in contradistinction to those other tumours which are liable to be mistaken for it. Within two years, and often much sooner, it runs its fatal course; killing now by frequent and exhausting hæmorrhage, and in other cases by the spread of disease to internal organs such as the liver. The lumbar glands have been known to press on the aorta and weaken the circulation, but I am not aware of their having done further injury in this direction; nor does there seem to be time for secondary disease of the bladder or rectum to develope. Secondary disease of the liver, lungs, kidneys, and abdominal glands, generally kills the patient before other organs have time to suffer. Occasionally, however, the most distant organs become implicated, as in other classes of cancer. In the same manner, also, we find no age exempt from it; although the adult and middle periods of life most generally suffer. I have seen a child of four years old suffering from it, and cases are on record even younger than that. I have not met with an instance in very advanced life; but there is mention of its occurrence in patients over seventy.

Practically, encephaloid of the testis is incurable. No local treatment as yet known has the least effect in retarding its growth, and its removal by the knife seems to have been followed by a want of success truly startling by its uniformity. English surgeons are almost to a man against operation, at least their accounts of want of success are sufficient to deter most men from the attempt. The not unfrequent record of successful cases at this side of the Channel is due to the habit of classing several innocent local tumours with cancer, under the common head of fungus hæmatodes. I could instance multitudes of such cases in addition to those already alluded to, but there is more discrimination, and we must accordingly expect to hear of fewer instances of success. The great vascularity of the parts—their twofold anatomical connection—with the scrotum and deep parts of the abdomen high up, are sufficient to my mind to account for the rapid poisoning of the system. It must be remembered that the arteries of the testis spring from the upper part of the abdominal aorta, and that its veins and lymphatics have similar relations, while the scrotum is supplied from branches of the neighbouring iliac and femoral arteries. A free anastomosis exists between the terminal vessels of both systems, so that a rapid spread of infection is the result. At the same time it is quite possible that a case may be met with in which the tumour may be small, the disease recognised, and the patient willing to submit to operation. Under these circumstances the operation might be risked, though it is not to be forgotten that even in such cases death has rapidly supervened from relapse, and the risks from the operation itself are more than ordinary; hæmorrhage and phlebitis have frequently carried off the patient.

In a case where the patient should refuse to submit to castration at an early stage of the disease, I should not hesitate to cut down on the cord, tie the vessels, and divide the vas deferens, as the next best proceeding to removal of the diseased mass, and one which might be submitted to where the other would not be heard of. It would at least do no harm, and might certainly be expected to stave off the evil day.

Should any surgeon venture on castration at a more advanced stage, he must be prepared to meet with the vessels of the cord considerably dilated, and to encounter much hæmorrhage also from the scrotal vessels.

Encephaloid of the eye.—This is an affection generally of attacked by it are under twelve years of age. As far back as 1765 it was described by John Hunter as affecting a child three years old. Desmarres mentions having seen it several times in children of two or three weeks of age; but its more common period of invasion is the third or fourth year. Sometimes it attacks both eyes. I have seen the disease in young females under or just about puberty, and it has been observed by Desmarres in a man about the age of forty; but no particulars of this case are given in his work on 'Diseases of the Eye.' Melanotic disease of the eye is met with at all ages; but pure encephaloid seems not to have been noticed after forty. Some cases noted as fungus hæmatodes by Saunders and Travers in patients from thirty-five to seventy-five years of age are clearly melanotic, or else so imperfectly described that I can draw no conclusion from them. Walshe, so accurate and full in other points, omits all notice of cancer of the eye from his work.

The earliest symptoms and subsequent dissections of encephaloid of the eye all tend to show that it has its origin in the retina. There is at the outset no alteration in the appearance of the cornea, sclerotic, or iris; and the functions of the last are perfectly executed. Loss, or imperfection of vision, are the first symptoms complained of, even before pain or uneasiness in the globe. Very soon, however, irregularity or immobility of the pupil is added. In one case mentioned by Desmarres hemiopia existed from invasion of the external half of each retina. If the pupil be dilated and examined with the ophthalmoscope, a small elevation will be seen to project from the concave back of the eye. This at first is yellow or pale, but soon assumes a shining orange or copper hue, and as it increases in size it sparkles with a generally be seen without the aid of the ophthalmoscope. This instrument, however, reveals the presence of blood-vessels ramifying in an arborescent manner through the tumour. The vitreous body is gradually compressed, softened, and finally removed by the continually increasing pressure of the cancerous mass, until the whole cavity of the globe is filled posterior to the lens.

Up to this point pain is seldom a prominent symptom; but no sooner does the gradually increasing convexity of the tumour come to press upon the lens and drive it forward on the iris, than pain begins in paroxysms of gradually increasing severity. At this period, also, the external tissues begin to sympathise; irregular attacks of conjunctivitis, with superficial soreness and lachrymation, are added; according as the lens and iris are pushed forward, the globe of the eye distends, the symptoms of ophthalmia become permanent, and the pain is incessant and almost intolerable. The anterior chamber fills with blood. The globe becomes irregular in outline and much enlarged; it projects forwards and stretches the eyelid, especially the upper, which is thick and inflamed, of a livid red colour, and almost incapable of motion. Incessant pain and want of sleep now waste and wear the patient; if a child, his cries are piteous and unceasing, and his agonies may bring on fatal convulsions. Fever and delirium accompany this stage of the disease. These symptoms reach their climax at the moment when the sclerotic is distended to its utmost. At length the cornea gives way, or the sclerotic—the former by slow ulceration, the latter apparently by a sudden rent; the patient gets great and immediate ease; the eyelid becomes soft and even fluctuating, so that the surgeon may be tempted to plunge in a lancet in search of matter; a little and refrain from interference, there is some little respite while cancerous infiltration gradually fills up all the orbit. Sooner or later, however, by a few weeks the stage of fungation is reached, and with great rapidity a large bleeding mass projects from between the lids; it pushes them aside and incorporates them and the integuments of the cheek with itself. Hæmorrhage, at first slight, but soon profuse and frequent, exhausts the patient. A fetid and sanious ichor constantly drops over his cheek, the bones of the orbit become expanded and carious, and the disease invades the brain; if protracted suffering and the fever of a wasting hectic have not laid him low, the unhappy patient now succumbs to convulsions and coma.

It will be readily understood that no operation for removal of this disease will be of the least avail, if it be not undertaken before infection has spread beyond the globe of the eye. In any case, operation is most unpromising in its results. Removal of simple melanotic tumours from this situation may be often successful, but of genuine encephaloid there are few on record. Many years ago I remember to have seen an eye removed by my uncle, the late Maurice Collis, at the Meath Hospital, and two years afterwards I saw the patient, free from all return of the disease. This case made a deep impression upon me. It was my initiation into operative surgery. The prolonged agony of the patient, the difficulty of the operation, the horrible appearance of the orbit when emptied of its contents, have stamped themselves indelibly on my memory. The operation selected was the most difficult, but the safest—that by which the entire contents of the orbit, including much of its periosteum, were removed. I believe it was done with rapidity, but to me it seemed interminable.

The first and most severe is the one just referred to. It removes all the contents of the orbit. The surgeon enlarges the outer canthus by an incision of variable length. It must extend rather beyond the bony margin of the orbit; if the tumour is very large, the inner canthus may also require a similar but less extensive division; facility in the later steps of the operation cannot be obtained unless these preliminary incisions give ample room. Should the eyelid be diseased, and require removal, enlargement of the canthus may not be required. The knife in that case will run along the bony rim of the orbit down to the bone; in case the eyelids are to be preserved, they will be drawn out of the way, and the incision will then pass through the reflection of conjunctiva down to the rim. The fibrous periosteum is now to be detached from the bone; it is in this stage of the operation that unnecessary delay generally occurs. The periosteum is closely adherent at the margins of the orbit, a little deeper it is comparatively loose; hence the surgeon should not delay by seeking to detach it at the margin, but, passing in his knife as close as possible to the bone, he should push it carefully on until he feels it enter free of resistance into the space between the periosteum and the roof of the orbit. This should be done cautiously, as the roof of the orbit is thin; not that there is much danger of penetrating to the brain, for the frontal sinus protects it in front, but the point of the knife is apt to catch in the bone, and may be broken off. A narrow and rather strong knife should be used—if possible, with a double edge. As soon as the surgeon feels he has entered the *cul-de-sac* of the periosteum he may move his knife rapidly along the roof, cutting the attachments of the periosteum to the upper surface of the orbit, and making ample room for the insertion of the curved scissors, with orbit and their fibrous sheaths. This done, he can draw out the eye, dividing the attachments of the periosteum on the lower and inner sides as they come on the stretch, with curved scissors or knife. The eyeball being now removed, he is to investigate the orbit with his finger and remove any suspicious portion that may have adhered to the bone. The cavity may be lightly filled with lint or charpie, but on no account is it to be tightly packed, nor is any bandage to be used that will confine blood or matter within the orbit. If hæmorrhage cannot be restrained by the most moderate pressure, or by ordinary styptics, the actual cautery with a small conical iron, most lightly applied, is preferable to any severe pressure. The vicinity of the brain, and the rapid fatality of phlebitic inflammation under such circumstances, must not be forgotten.

The second operation is more easy of performance, and is commonly substituted for the severe and difficult process I have just described. It consists in removing the globe, with all the muscles, and, if necessary, with the lachrymal gland. The canthi may be enlarged, but this is not needed in all cases. The knife is sunk in along the reflexions of the conjunctiva, deep into the space between the muscles and periosteum. The lower line of reflexion is first to be divided, as it would otherwise be obscured by the flow of blood from the upper incision. The two incisions being made, the curved scissors are passed in, and the optic nerve and origins of the recti are snipped across; the orbit is now emptied of its contents, with the exception of the lachrymal gland, the removal of which will depend on the circumstance of its infection.

The third operation, suggested the same year by Bonnet, of Lyons, and Mr. O'Ferrall, of this city, is ingenious, and the muscles being left behind in their places; this is to be effected by cutting through the subconjunctival fascia (called by Mr. O'Ferrall the tunica vaginalis oculi); the attachment of the internal rectus is to be sought and divided, as in the operation for strabismus; the eye is then forcibly drawn outwards, the optic nerve put on the stretch and snipped across, and the eyeball turned out, the remaining recti and oblique muscles being successively snipped across. This is an easy operation, and is suitable in cases of simple melanosis; but in encephaloid, which almost invariably recurs, and which has its origin in the retina, the removal of as much of the optic nerve as can be reached is imperatively called for, and as this operation leaves some of it in the orbit, it is not the best to have recourse to. I have mentioned it here rather than in the chapter on melanosis, because I wished to give in one view all the operations for removal of the eyeball, for whatever form of disease.

The subsequent treatment of these cases after operation is simple; there is seldom any hæmorrhage that cannot be restrained by gentle pressure and the muriated tincture or the solution of the perchloride of iron. Actual cautery may be called for in bad cases; few, if any, ligatures will be required, or could be tied; light dressing for a day or two; then a poultice of bread and water to encourage the inevitable suppuration. I have never seen any prolonged or troublesome suppuration; in all cases the orbit rapidly fills with granulations; in bad cases these are the prelude of a fungous growth, which brings matters quickly to an end. In the few successful cases, whether of cancer or melanosis, these granulations contract adhesion with the raw edges of the conjunctiva and draw in the lids; as soon as the lids will admit of it, a

The origin of encephaloid cancer of the eye from the retina is quite enough to account for its almost invariable recurrence. The tissue of the nerve is generally found softened and infiltrated with cancer-cells, so that removal of the entire disease is not often possible. Hence in any case that offers a chance, the first or second operation should be adopted, as by them the nerve can be much more satisfactorily removed than by Mr. O'Ferrall's operation. This, as already stated, is suitable for incipient melanotic disease, and will be more fully referred to in the chapter on that subject.

The question of the treatment of encephaloid is of much importance. In England, as a rule, surgeons are opposed to operation; in Ireland and France, they are, as a rule, in favour of it, unless where the influence of English opinion is felt. I believe this difference of opinion is to be set down less to the national temperament of the surgeon than to that of the patient. The acute cancers of the Celtic race are more rapid in progress and less infiltrating in nature than those which, by their more insidious attack, poison the system of the Saxon before they produce sufficient alarm in his mind. In a word, acute cancer is more acute in France and Ireland than in England. Hence, as regards the last-named country, it is but reasonable to expect the practice to be less certain. Fortunately, as already stated, the disease is less frequent there than here. Still, it behoves us all to be mindful of this difference of type according to race, inasmuch as in these days the continual migration to and fro will bring under the notice of the surgeon every variety of patient.

Where the knife is not admissible, we have few resources. Leeches, both upon the tumour and round it; cold, according as it can be borne, whether by pounded ice or by evaporating lotions; with sedatives; are our principal means of arresting the seat of disease, a few leeches scattered between it and the axilla often check its spread in that direction. Leeching may be followed up by sedative plasters, such as the emplastrum opii, or the belladonna plaster; the former is best for pain of a burning character, the latter for darting and lancinating pains. After leeching and strapping with sedative plasters, ice may be cautiously tried for a few minutes at a time, and, if well borne, it may be further applied for longer periods.

To glands in a state of encephaloid infiltration, all these measures may not be applicable. In place of ice, after the leech-bites have healed, or in cases where, from the thinness of the skin, it may not be deemed safe to use leeches, much benefit may be obtained by the tincture of bromine; from thirty to forty minims to the ounce of spirits of wine will form a sufficiently strong application. It is to be laid on with a brush, in the same way as tincture of iodine. At the moment of application it gives some smarting pain, and, if too strong, it will blister severely. After half a minute or so a little oil spread over the surface with the finger decomposes the bromine and relieves the pain. In preparing the tincture simple spirit of wine should be used. The smell of bromine is so offensive that we may be easily tempted to try to conceal it with an essential oil. The smallest quantity of oil, however, decomposes the bromine, and a harmless ethereal substance results.

The tincture may be applied night and morning for a long period, and will, at least, appear to retard the growth of the tumour; the pain which it produces does not last long, and seems to confer immunity afterwards from the special pain of cancer. I have been in the habit of administering the bromide of potassium internally along with the external it with a preparation of iron, alternately, with marked benefit. The palliative treatment of cancer will, however, be considered in a future chapter; the tendency of scirrhus to terminate in encephaloid, when left to itself, makes it advisable to defer the question of treatment (apart from operation) until after the description of all the forms of the disease.

In these days, when chloroform relieves the patient from much of the pain and shock of operation, we are justified in a more free use of the knife. In the breast we may almost always operate in encephaloid; only when rapid cutaneous infiltration has given rise to glandular poisoning should we hold our hand. If the skin were sound, infiltration of the glands alone should not deter me from giving a young and otherwise healthy woman this chance of life, or even of prolonged life. I have so often seen irritation of glands subside, and even infiltration cease to extend for months, and even years, that where I could keep plenty of skin I would operate even if the axillary and supra-clavicular glands were enlarged.

There is a variety of acute cancer in which, from the earliest recognisable period, we are almost debarred from using the knife. It is when the energy of the disease is directed especially to the skin, giving it the brawny look and feel known as lardaceous. In these cases the glands suffer early infiltration, and the germs of the disease pass on into surrounding parts rapidly and extensively. Under such conditions relapse is almost certain to occur soon. The tuberculated type of encephaloid is also a very bad form; in it small raised tubercles form in the skin, and, rapidly extending, coalesce into a hard elevated tumour, red or livid, with the skin adherent to the subcutaneous tissue. Such cases run a these forms occur especially in the mammary region, and though not pure encephaloid, they are on the border line between it and scirrhus, and often complicate what would otherwise be pure encephaloid.

The more purely encephaloid, the more easy of perfect removal, and the greater the probability of permanent immunity. Such is the summing up on the question of the knife; in most cases, unfortunately, it is a question of calculation and balancing probabilities, rather than of any certainty of result.

These remarks are as applicable to encephaloid of the eye or testis as to the breast, if we also take into consideration the more complex structure and compound relations of both these organs. Practically, this makes all the difference—if we can make a sure diagnosis while the cancer is in its infancy, and get leave to remove either the eye or testis while the disease is limited to it, we may be so fortunate as to obtain a cure; but how rare will this be. Once the body of the optic nerve is affected or the sclerotic perforated, general infiltration commences, and a fresh set of vessels and nerves become implicated. In the case of the testis perforation of the tunica albuginea occurs early, and is in like manner the starting-point for further mischief; the cavity of the tunica vaginalis affords fresh space, and when the fungus which pushes into it from the body of the testis has contracted adhesion to its walls, a new set of vessels becomes implicated, and a new set of glands becomes subject to infiltration. The early diagnosis, therefore, of both cancer of the eye and testis becomes of immense importance as regards the question of operation and its effects on the life of the patient. The grounds on which to come to a decision in encephaloid of

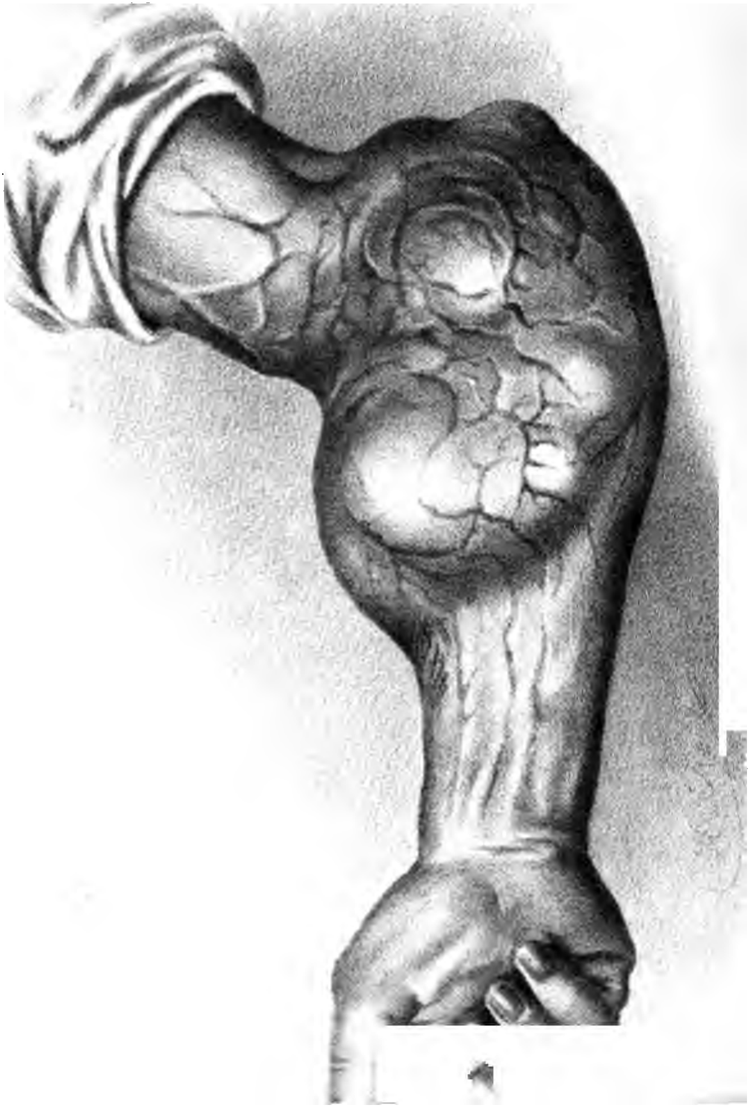
A question of importance occasionally arises where a tumour, situated in one of the limbs, seems capable of enucleation. It may be a matter of debate whether the surgeon should dissect out the cancer or amputate the limb. Two reasons lead me to the conclusion that the former alternative ought to be the rule—first, the possibility of error as to the nature of the tumour; and secondly, that recovery, whether temporary or permanent, is more probable after the less severe operation. Early in life as a surgeon, and before any well-defined rules had been laid down for the diagnosis of recurrent tumours, I had occasion to come to a decision in a case supposed to be encephaloid cancer. In consultation I was outvoted, and the man's leg was condemned for a tumour on the dorsum of the foot. Fortunately, the man took my view of the case, and refused to permit amputation of his leg, threatening also to hack off the tumour with a razor if we did not remove it *secundum artem.* Accordingly I got my own way, and was allowed to dissect out the growth.

It turned out to be a recurrent tumour, and, after repeated use of the knife, it was finally eradicated. This taught me a lesson of caution in doubtful tumours. A somewhat similar case occurred in the hospital practice of one of my colleagues, some time dead, by which I was led to believe that the system resents operations which are more severe than needful.

A fine healthy-looking labouring man, aged about fifty, consulted me in August, 1856, for a lump the size of a hen's egg, behind the inner condyle of his right humerus. It had originated in a hurt some weeks before. Whether there was any previous enlargement of the lymphatic gland which lies in that situation he could not tell me. The tumour, though small and loosely rolling, was nodulated and elastic, convey-which he declined, and I lost sight of him until after a lapse of nine months, when I saw him in hospital under the care of another surgeon. The tumour was then nearly as large as the head of an adult, lobulated and softly elastic, with numerous blue veins over the surface, yet standing up well from the arm and capable of being freely moved under the skin and fascia, which were stretched and thinned over its more prominent part. The engraving (Plate IV) gives an admirable idea of how matters stood at this time (May, 1857).

I advised that enucleation of the tumour should be at least attempted, but, from dread of hæmorrhage, amputation in the middle of the upper arm was preferred. The wound never healed, owing to a spicula of dead bone, and the man died of cancer of the lung in three months. Coupling the results of this case with many others in which tumours of equal or nearly equal magnitude have been removed, I cannot avoid the impression that it is not justifiable to perform a severe operation where a milder one will remove the tumour. Certainly, amputation confers no immunity from return. I believe it rather favours it, by lowering the system. In the case under consideration the tumour was found to be quite capable of removal, without interference with the vessels. Its deeper parts occupied the intermuscular spaces, while the muscles, skin and glands, were perfectly free from incorporation with it. It was a perfect example of acute cancer.

PLATE IV



CHAPTER IV.

SCIRRHUS.—HARD CANCER.—CHRONIC CANCER.

Formerly all hard chronic tumours were called scirrhus; now the term is properly limited to those which are genuine cancers.

Scirrhus is the most common of all tumours. The cases of scirrhus of the female breast would appear to equal in number all tumours, of all kinds, situated elsewhere.

There are three well-marked varieties of Scirrhus—Simple Scirrhus, Lardaceous Scirrhus, and Atrophic Scirrhus.

Wherever it occurs, the physical characters of Simple Scirrhus are similar. Slow growth, and a tendency to condense the fibrous tissues of the parts implicated in the morbid infiltration, produce a tumour of comparatively small size, irregular outline, and great hardness and weight.

The outline of such a scirrhous tumour is always irregular. Sometimes the surface is coarsely and unevenly granular; more frequently there are irregular projections, which make it feel, according to its size, like a nugget or a Jerusalem artichoke; at other times it is more evenly tuberous, like a potato. Always there are portions more prominent than others; or, to speak more correctly, there are lines and seams more or less deeply indented into the substance of the growth. The depressions are caused by the contraction of the fibrous tissue of the part: the pro-

or cancer-cells. As these accumulations take place in the angular interstices of the fibrous tissue, they will vary much in size, not only in different cases of scirrhus, but also in the same specimen. This forms a good diagnostic mark between scirrhus and such sero-cystic tumours as might be mistaken for it. The granular outline of the cysts feels much more even in size, like grains of duck-shot under the skin, while the feel in scirrhus is as if shot of all sizes were mixed up and half fused together into an irregular mass.

There is a constant antagonism between the two processes of deposit and contraction. According as the latter is more energetic, the tumour will be dense, hard, and unevenly granulated on the surface; if the tendency to contract be feeble in proportion to the rate of multiplication of cell-tissue, the tumour will be less heavy, less dense, more tuberous or nodulated. It must be remembered that I am excluding for the present the consideration of those cases in which a fatty deposit tends to modify these results. In the pure scirrhus, where there is no extraordinary deposit of fatty matters, the effects of the deposit of cells, and of the contraction of fibrous tissue, can be best studied; when they are once thoroughly comprehended, it is easy to take in the modifications which various disturbing causes may produce.

According as the tendency to contract predominates, the tumour is more purely scirrhus; where the depositing or cell-producing tendency is in the ascendant, the resulting growth becomes more allied to encephaloid. As long as the tumour is of moderate dimensions, hard and heavy, it will be called scirrhus; when its size increases, with a diminution in the hardness and proportionate weight, it will, more properly, be quently still the acute type developes itself in a chronic nidus, after the receipt of some injury, when a rapid increase in size in all directions masks the original small hard tumour.

The hardness of a genuine bit of scirrhus is something remarkable; it is well characterised as a stony hardness; there is no yielding in it; or, if any elasticity be found, it is of a character like that of hard india-rubber; there is no making any impression on such a tumour by the finger; nothing like œdema is to be found in it. In proportion to the hardness is the weight of the tumour.

Where these three characters—small size, great weight, and hardness—coexist, they frequently mask some of the other distinctive features of scirrhus. Thus, in the breast we often find such a tumour small, hard, and heavy, apparently loosely rolling in the subcutaneous tissue; this is the case in loose, thin, pendulous breasts. In such cases, at first sight and feel, the surgeon may fail to perceive the fine but strong and firm bands which attach the tumour to the skin, especially at the nipple, and to the glands in the axilla. An attempt to isolate the tumour with the fingers in the direction of the nipple and axilla will reveal these bands. If we draw the tumour away from these parts, the bands will be put on the stretch, and will draw them after the tumour. Often, when these adhesions would otherwise escape observation, this sort of milking action will discover them.

These bands can be demonstrated at a very early period of the tumour's growth, and form an important feature of diagnosis. In a case brought to me by my friend, Dr. Sawyer, we were able to identify a tumour no larger than a marrowfat pea as scirrhus, by its irregular outline, its hardness, and these lines running to the nipple and axilla.

not followed, and the result, in a few months, proved the correctness of our diagnosis. The poor lady temporised, consulted one surgeon after another, some of whom recognised the tumour as cancer and advocated its removal, while others advised delay until its characters should be more pronounced—in other words, until it had become unmistakeably and hopelessly plain. The end was that she delayed until it reached a stage when no surgeon would operate, and in two years from the time I saw her she was dead.

Other physical characters of these tumours are rather secondary results, and will be considered in conjunction with the symptoms when treating of their progress and terminations. I now rather turn to consider the aspect and feel of the section of a scirrhous tumour when removed. The dense, closely contracted fibrous tissue, cuts tough and gristly, sometimes almost cartilaginous, while the cellular portions are soft and unresisting to the knife. Immediately on being cut (if the section is made while the tumour is warm), the fibrous portions contract a little and make the section uneven. In doing so, more or less of the characteristic creamy fluid is expressed, and flows off the surface. The fibrous tissues are generally of an opaque white, lying in streaks and lines, which cross each other at all sorts of angles, leaving loculi or interspaces of very variable size between them. These loculi are angular, not rounded, as in encephaloid. The contents of the loculi are of a grey or blue-white shade; they can often be picked out with the point of a knife or needle, but not cleanly, as they would if contained in anything like cysts. The loculi are seldom of any size, from a mere point up to the size of a pin's head or very small pea. In the transitional forms, and on the outskirts of the more irregularly shaped tumours larger loculi are often found containing a pinkish loculi in such a case being less angular, and the fibrous stroma interspersed with radiating vessels. In cancers of the breast there may generally be seen some yellow spots, from the size of a pin's head to that of a pea, contained in little beds, from which they can be turned out like the yolks of hard-boiled eggs. Their loculi are generally rounded. These are the dead oily remains of cells, either the epithelial cells of the milk ducts, or cancer cells.

In parts where the areolar tissue is naturally loose and coarse, scirrhus presents characters somewhat different from what is above described. The contraction of the fibrous tissue still exists, and renders it hard and tough; but the loculi are larger and their contents softer, and often not to be distinguished from common fat without the aid of the microscope. I have seen scirrhous tumours in the region of the buttock, which attained a large size, and in which the loculi were of this description. These belonged to the lardaceous variety of cancer. Although the section of scirrhous tumours is hard and tough, it is surprising how much juice can be squeezed out of them, and how readily much of them can be scraped down with the edge of the scalpel into a pulp. If a piece be macerated for forty-eight hours or so, and subjected to a stream of water, it will readily break up, and much of even the dense fibrous tissue will be washed away. This is due to its low vitality, and to the presence of large quantities of oil, not only in the cellular tissues, but also in the fibrous.

Microscopic examination of the juice shows quantities of cancer-cells, generally of irregular and angular outline, large size, pale transparent cell-membrane, and with very large well-marked dark nuclei; mixed with these cells are free nuclei, nucleoli, and granules, but in smaller quantity than they are often many broken fragments of cells. This multiformity of shape is a great characteristic of the chronic forms of cancer. The fibrous stroma of the tumour varies according to the original nidus of the deposit. In the breast the dense opaque white fibrous ducts form marked features in the tumour; but besides these there is a very large quantity of condensed fibrous tissue, which appear to be the remains of the natural areolar tissue of the locality, and which partakes of many of the characters of tissue innodulaire, owing to a slow process of condensation and contraction to which it has been subjected by the irritating presence of the cancerous deposit. There is nothing pathognomonic in the microscopic characters of this fibrous tissue. It resembles what is found in the liver and tongue of whiskey drinkers, causing, by its contraction, the seamed appearance of both these organs. It is identical with the tissue of cicatrices, especially those of burns, and with the substance found in parts that are hardened by chronic inflammation. As found in scirrhus, it is composed of fine pale fibres or fibre-cells, with small nuclei, arranged with considerable regularity in rows or layers, which have a general faintly-wavy course, and intersect and blend with each other in meshes of irregular form and size. Mixed with these rows of fibrous tissue are minute vessels which freely anastomose, and run into the groups of cells which fill the loculi. These cells are to be found attached to the walls of the fine vessels, as if they grew from nuclei in their walls. I do not say that they have their origin in this way, but they adhere closely to the vessels, and in a very regular manner.

The symptoms produced by a scirrhous tumour of the small and chronic type are at first neither many nor severe. Pain or uneasiness is an early symptom. Generally a few appearance of the tumour; these may increase in severity as the tumour enlarges, especially if it be situated under any resisting fibrous membrane which binds it down. In all probability the pain is caused by the action of the cancerous deposit upon the fibrous membranes in its neighbourhood. All is, however, conjecture on this point. We scarcely understand anything of the proximate causes of pain. In cases of cancer there are the widest variations in the degrees of pain; neither the size nor the duration or period of the tumour seem to influence the amount of pain with certainty. A small tumour is often far more painful than a much larger one under apparently similar circumstances; the same tumour may be very painful when small, and cease to give much trouble when it has grown large, although, in general, the tumour which is painful at the outset continues to give pain throughout; but no rule can be drawn that will be even approximately useful in the prognosis of any given case. I have very lately seen a case of simple chronic enlargement of the breast, the remains of milk abscess in a young woman of twenty-two, where the pains were spoken of as sharp, darting pains. In the same case there was complete retraction of the nipple from loss of substance underneath. Here there was no suspicion of cancer; the youth of the patient, her strumous look, the previous abscesses, and the characters of the tumefied gland, negatived the idea of cancer; yet the pain was described in the identical terms that most patients use when speaking of cancer. In dubious cases, then, we cannot rely on the character of the pain for much assistance in our diagnosis. Another kind of pain is frequently met in cancer of the breast, namely, a soreness, or dead, dull, heavy ache, especially after the tumour has been handled.

nicity and small size, are most likely to be mistaken for cancer. In cancer this kind of pain comes on soon after handling, and lasts often for hours. In chronic inflammations of small size it is trifling in amount, and of short duration. In severer cases of inflammation it may be as severe and durable as in cancer, but in such cases other characteristics will be found to show the nature of the case. such as the evident signs of inflammation, in heat and redness, œdema, and such symptoms as throbbing, and the sudden occurrence of irregular shiverings.

As chronic scirrhus advances, if it does not merge into the atrophic variety, of which more by-and-bye, it becomes harder and more fixed as it enlarges. The skin is more and more drawn into the tumour, seamed and puckered; the subjacent fascia and fibrous tissues are also incorporated with it. The cellular element of the disease shoots along the track of the vessels and intermuscular septa, and where it is in contact with muscle it is deposited among the fibres in the form of small beads or tubercles. Increased pain, cramps, and spasms, are the results of this process; while its influence on the lymphatics is shown by œdema of the skin, often to a considerable distance from the tumour, and by enlargement of glands. Distant œdema results simply from mechanical obstruction to the lymphatics and veins, but œdema may sometimes be found encircling a scirrhous tumour, as round any source of irritation.

As the disease advances, general nutrition suffers, the patient loses sleep from pain of body and anxiety of mind, the spirits and temper fail in consequence, and there is more or less loss of flesh.

Sometimes there are slight paroxysms of fever in the eventinged with an olive or greenish shade. This condition of skin is peculiar to cancer; it may exist early, or it may, on the other hand, be entirely absent at all stages. In scirrhus, however, it is generally present towards the latter end; it bears no proportion to the size of the tumour, but rather to the degree of pain and distress (both mental and bodily) which co-exist with it. We find it alike in cancers which are ulcerated, and in those which are still unbroken; but in the latter there will generally be found some serious extension of the disease, either to glands in the neighbourhood or to distant and internal organs. Scirrhus may advance in various directions. When the tumour has enlarged so as to distend the skin and interfere with its own vascular supplies, a considerable portion may slough suddenly; this rarely happens in pure scirrhus — lardaceous and encephaloid cancers are more frequently liable to this sudden loss of balance between the nutritive functions of the tumour and its development. Still, in the larger masses of scirrhus, death may suddenly strike the central parts. A dark, greenish-brown offensive slough falls out, leaving a ragged irregular cavity with undermined and overhanging or everted edges, and an uneven nodulated surface. The margins at first appear thin and free from deposit of cancer; perhaps they may draw together, and partial or even complete cicatrisation may take place.

I know of at least one case where the ulcer not only cicatrised, but remained permanently free from return of the disease. This, however, is very exceptional; in general, the healing process is soon interrupted, large irregular masses of granulations spring up from the floor of the ulcer, and, rapidly accumulating, overtop the margins with a bleeding fungus; or tubercles of cancer appear in and round the thin running together, they form a fungus which only differs from that already mentioned by being more sessile and flat—it is also slower to bleed and bleeds less. Sometimes the fungating process arises without previous sloughing—the centre of the lump softens, pushes forward, distends the hardened and infiltrated skin, which cracks and bleeds or discharges an acrid fluid; the margins of the fissure become thick and soon fungate, the soft underlying portion of the tumour becoming incorporated with them.

In whatever way a fungus is produced, its effects are much alike—constant loss of blood and pus wears down the patient's strength, while the diseased condition of the skin is quickly productive of glandular and internal poisoning; cancerous cachexia is developed, and hectic closes the scene.

In a case of very chronic cancer of the breast which I lately saw in the Meath Hospital, under the care of my friend Mr. Macnamara, there was a condition which to the eye presented much of the appearance of a fungous mass; it was red and prominent, the surface was excoriated and bled freely; but when the part was handled it had none of the soft, yielding, or spongy condition which usually characterises a bleeding fungus—it was of stony hardness throughout; the skin was infiltrated and adherent over all the breast, and over the prominent portion of the tumour the superficial layer of skin was thinned away. Innumerable minute fissures poured out a constant ichorous discharge; the clothes from time to time adhered to the surface, and in spite of every care a large raw surface resulted. In this case the skin was more than usually infiltrated, and in the axilla a number of lymphatic glands were gathered up into a compact mass of hard irregular scirrhus. The case was very chronic—a tumour had existed for years, and had gradually become developed the connection between the amount of scirrhous infiltration of the skin, and the degree of glandular poisoning—both existed in rather an extreme degree. The axilla not being overloaded with fat was easily examined; one hand could be carried well up into it, and the glands could then be felt distinctly, while pressure was made from above downwards by laying the other hand firmly on the pectoral muscle. The impression conveyed to the hand was, that all the axillary glands were infiltrated, and, in consequence of the contraction of the ducts and fibrous tissues, agglomerated into one mass. From such a fungus hæmorrhage may be slight, coming as it will from superficial vessels. But the ordinary soft fungus which springs from an open cancer bleeds more freely, its vessels are more numerous, and their walls most delicate, and where sloughing accompanies such a fungus, active hæmorrhage may ensue by the accidental opening of a large vessel. This is, however, rare, as inflammatory action generally closes the vessels before they can be eroded. Death may arise then from pain, hæmorrhage, and the hectic resulting from local losses or internal deposits.

Internal deposits occur in the pleura, lungs, liver, mesenteric glands, kidneys, pancreas, and other viscera. There is not, in fact, any organ or tissue in the body which is not in turn the seat of secondary cancer; the bones, the muscles, both voluntary and involuntary—even the heart itself—the brain and nerves—all, may be the seat of cancerous degeneration. In every general work on Surgery, cases are given of fracture from secondary cancer of the bones; the long bones and the ribs are most liable to be affected in this manner.

The form of cancer in bones is as a rule encephaloid; scirrhus of bone is scarcely to be found as a secondary deposit. The identity of scirrhus and encephaloid is plainly seen in the one tissue, secondary encephaloid of the same or of other tissues. While the primary deposits in glands connected with a scirrhous tumour will frequently partake of its chronic nature, the secondary deposits, wherever situated, will be found in general to be encephaloid; except the scattered hard tubercles in the skin which come round a cicatrix.

Scirrhus is essentially a disease of middle life; I have certainly seen a patient who, as a child at three years of age, had an undoubted scirrhous gland in the axilla, which grew with extreme slowness until he reached thirty, when it suddenly took on encephaloid action.

There is also a case noted in the 42nd volume of the 'Medico-Chirurgical Transactions,' by Dr. Sibley, of cancer attacking a patient of eighty-four in the breast. These, however, are extreme cases. Fully two-thirds of the cases of chronic scirrhus occur in the period from the fortieth to the fifty-fifth year. The average age for scirrhus of the breast, according to Dr. Sibley, is 48·6 years. The youngest authentic case of scirrhus of the breast that I have ascertained in this country commenced at the age of twenty-three. The eldest I have seen was seventy-eight.

Scirrhus of apparently a rapid type is often found in elderly females, especially the unmarried, or those who, if married, have not had children. In this case a tumour of a hard nature is suddenly discovered in the breast, and by consequence it is set down as of recent formation. This idea, in all probability erroneous, is further fostered by the now rapid progress of the case. The real state of things I imagine to be, that scirrhous infiltration had been going on slowly for a considerable time, and that from some accidental cause an acute development of the disease had commenced, and had given rise to uneasiness and excitement in the breast.

patient's mind is alarmed, she begins to handle the bosom continually, and by thus increasing the local irritation the extension of the disease is encouraged. In such cases I have found a rapid softening of the previously hard tumour, with extension to the glands, and deposits of cancerous tubercles in the surrounding fat and muscles; if allowed to advance to their natural termination, these cases terminate fatally in a few months (12—18), by fungating, by hæmorrhage, cachexia, and internal deposits. I had lately an opportunity of examining a typical specimen of this class of tumour, which had been removed by Dr. De Ricci, at the moment when its chronic type was changing into the acute. On dividing the tumour, the greater portion presented an opaque white appearance, characteristic of close-set scirrhus; in the centre of this scirrhous portion a small nodule of grey, soft matter was seen, the size of a marrowfat pea; in the loose cellular tissue beneath the gland was a nodule of similar size blue with vessels; while in the adipose tissue, in the direction of the clavicle, there were clusters of similar nodules; towards these ran streaks of white dense scirrhus, showing that the original condition was one of chronic infiltration, and that the roundish nodules were of much more recent development, and were added on to the other. Such combinations of encephaloid engrafted on scirrhus are at all times of more than doubtful issue; in cases where the disease is still so far circumscribed as to be capable of complete removal, we shall do well to give our patients the chance of operation. The misfortune is that so short an interval is left between the discovery of the disease and its general dissemination, as to give no time for the procrastination which so fatally attends on all who are afflicted with cancer.

I have seen two cases in which scirrhus seemed to make

nt was under my own care,
nd Dr. Purefoy, of
ly. In

e
nd
Dr.
bove
tissue
late V,
woman
the other
gh severe
stic disease
e discharge
d on examin-
ll cysts filled
ire gland, both
er and in those

PLATE V.

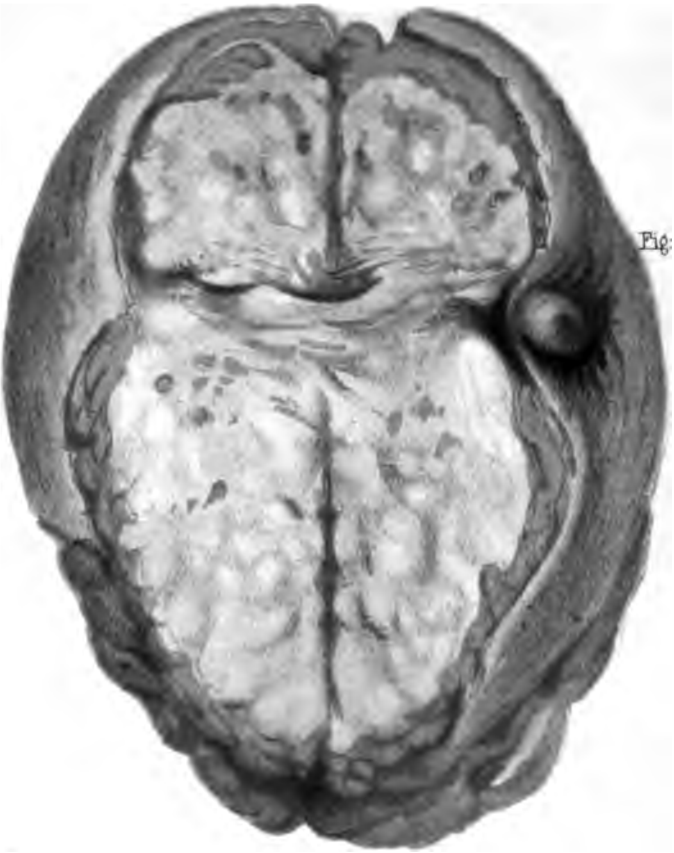


Fig. 1

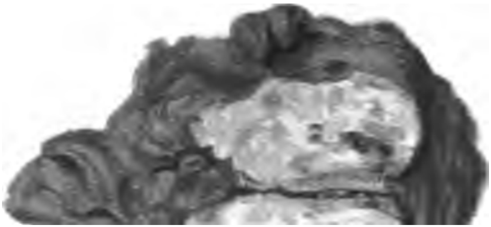


Fig. 2

the mammary gland: one patient was under my own care, having been sent up to me by my friend Dr. Purefoy, of Lucan—the other was a patient of the late Mr. Smyly. In both cases the disease had been remarked in the form of a distinct and considerable tumour in the axilla before any notice was taken of the breast. In Dr. Purefoy's case the breast was positively free from disease for six months after the tumour in the axilla had been noticed. In Mr. Smyly's no attention was paid to the breast, until pain was felt in it six weeks after a considerable tumour in the axilla had been discovered accidentally; the painful spot in the breast was found hard, or as the woman expressed it tight without any tumour. Six months afterwards I saw her, and found the gland in the axilla the size of a large walnut, the tumour in the breast not a third of this size. In both cases the nipple was not retracted. In Mr. Smyly's it was remarkably long, and had discharged a bloody ichor for some weeks. In both cases the breast was free from disease under the nipple, the tumour lying below the level of the nipple, and rather towards the axillary border of the gland. In Dr. Purefoy's case there was a second deposit in the gland above the nipple, with an interval of perfectly sound gland tissue between the two. This is the specimen figured in Plate V, after a very beautiful drawing by Mr. Connolly. This woman had received many blows and hurts on the breast, the other was not aware of any, but she had gone through severe mental distress. There was no complication of cystic disease in Dr. Purefoy's case. In Mr. Smyly's, from the discharge of sanies from the nipple, I expected to find it, and on examining the breast after removal, numbers of small cysts filled with bloody serum were found through the entire gland, both in the parts which were infiltrated with cancer and in tho

PLATE V

The removal of the breast and glands was accomplished in both cases as a palliative measure only, with the full knowledge and concurrence of the patients. A cure was not expected, but it was deemed advisable to relieve them of the large and distressing local development of the disease. In my case, the poor woman survived fourteen months, and would probably have lived longer had she paid the most common attention to cleanliness and ventilation in her rooms, but, as I was informed, nothing could exceed the filth and stench of the place in which she lived; a number of pigs were kept under her windows, with a high wall beyond the sty, still further to obstruct the fresh air.

Mr. Smyly's case was operated upon but a short time before his death; a cure was not expected in it. Indeed it would be unreasonable to expect a cure where the disease had once spread to the lymphatic glands; and though we may operate with propriety, it can only be with a hope of obtaining a longer respite from death, and perhaps a less painful end by internal cancer of lung or uterus.

The combination of scirrhus with cystic disease is not uncommon, and may occur in many forms. Either may be the primary affection, although as a rule the cysts will precede the cancer.

The cancerous deposit may be within the cysts, or it may be a pure infiltration external to them in the areolar tissue of the gland. If cysts are spread through the breast, some may contain cancerous matter, while others may still be simple cysts, or at least non-cancerous as to their contents. A case in which I operated seven years ago illustrates some of these points, and shows the necessity of making a thorough examination, whether clinical or microscopic, before we venture on an opinion. In the early period of this lady's case, the scirrhous nodule was hidden by them, and might easily have escaped notice. It further shows that a careful microscopic examination is needed in cystic cases before we can venture to pronounce them free from cancer; and that this examination must not be limited to one or two parts of the tumour.

In February, 1857, Mrs. O— consulted me about a small swelling in the upper part of her left breast: it was moveable under the skin, and attached to the gland, but standing up from it; it was hard, and irregularly nodulated; it at once gave me the impression of being a scirrhous cancer. There were severe, sudden, sharp darts of pain through it; blue veins ramified over the surface; the nipple was not retracted, either then or subsequently, but a discharge of bloody serum came from the nipple almost from the first; this discharge was greater after handling the breast. The size of the tumour, when I first saw it, was about that of a marble; it had been remarked six weeks before I was consulted about it. The tumour grew very slowly; but a gradual increase in the elevation of the surrounding parts was perceptibly marked in the month of June, and by the beginning of September the original tumour was almost lost in the increased growth of the gland; the surface of the breast had, by degrees, acquired a granulated feel, as if shot-grains were imbedded in the gland. The pain was still referred to the site of the original tumour; the integument was unaltered in texture, and was not unnaturally adherent to any part. The lady's age was thirty-eight; she had one child only, aged about ten years; she was very fat, and suffered much at one time from passive congestion of the lungs, and palpitations; but for a year or two previous to the appearance of the growth

Dr. Johns' advice; and we were both of opinion that it had nothing to do with the tumour of the breast.

Various treatment was adopted, including the iodide of arsenic, and iodine and iodide of potassium, externally and internally, without any effect. Fomentations which were used at an early period produced an increase of pain and discharge from the nipple. The lady's general health was good, but the presence of the diseased growth gave her much uneasiness; and, after consultation with Mr. Cusack, I removed it on the 17th October. All progressed favorably, and the wound had cicatrised early in January of the ensuing year.

On examination, after removal, the whole gland was found full of cysts, varying from the size of a pin's head to that of a small haricot bean; most of these cysts were full of an oleo-albuminous fluid; some few had three or four secondary sacs inside them, attached to each other and to the wall of the cyst by a hollow pedicle, by means of which each of these secondary cysts communicated with all the others enclosed in the same primary cyst; the size of these miniature bunches of grapes was about that of currant-seeds; the contents of these little secondary cysts was of a blood-red colour, and consisted of blood and simple granular corpuscles. Some of the cysts communicated with the milk ducts, and the flow of sanious fluid from the nipple was thus accounted for. The bulk of the tumour consisted of these cysts, the milk ducts, and fat. At the seat of the original tumour, at the upper part of the gland, the cysts were small, and closely set in a dense, tough mass, resembling lardaceous scirrhus.

No cancer cells of the ordinary type could be found in the fluid which flowed from the cut surface of this part, but large granular bodies deeply stained with a dark brown pigment were large cancer-cells in a state of oily degeneration, and stained with melanotic matter; they abounded all through this portion of the tumour, but were not found in any other part of the breast.

The coexistence of scirrhus with cystic disease is a clinical fact of much importance, as one is apt to mask the other. In the foregoing case the grounds of diagnosis were as follows:—

1. The occurrence of severe darting pains at an early date, and their limitation all through to one point in the breast, which was afterwards found to be the seat of scirrhus.

2. The presence of a distinct though small elevated tumour in this point; the tumour being of stony hardness and nodulated surface.

3. The subsequent elevation of the entire breast almost to a level with this tumour; the surface of the gland becoming at the same time granulated.

4. The absence of retraction of the nipple, which was at some distance from the first tumour.

5. The sanious discharge from the nipple, produced, as I believe, by the communication of some of the cysts with the milk ducts.

The subsequent history of this case is of great interest. I should have mentioned that, owing to her extreme corpulence, and the condition of her heart and lungs, it was not deemed advisable to give chloroform at the operation. The breast was enormous, with one exception (a chronic mammary tumour), the largest I ever saw subjected to operation; it required an almost circular incison to remove it, yet, strange to say, the edges of the wound came well together. Large as was the mass removed, a small not dissected out, owing mainly to the necessity for rapidly completing the operation. For three years all went well. She then had a return of cancer in this portion of gland tissue, and I removed it in February, 1861. On dissection of the tumour, I found a nodule of encephaloid contained in a cyst, and dotted with black specks. The cancer elements were plainly marked in this secondary deposit, and further go to prove the identity of origin in the two forms of the disease. Since this second operation the lady has remained perfectly free from any relapse; her bodily health has greatly improved, with the exception of increase in the fatty degeneration of the heart, and a consequent disturbance of the circulation in the brain, with singular mental phenomena. This case was exceptionally favorable in its results. As a rule, the scirrho-cystic combination is of more than doubtful prognosis. Why it should be so is not so easy to explain on scientific or even theoretic grounds. Yet the fact is so, that whenever the breast is the seat of cysts, it is not only liable to cancer, but peculiarly liable to relapses. When we come to treat of cystic disease, we shall find that from the interior of cysts all kinds of growths are developed, cancers among the rest.

The following case exemplifies the apparently simultaneous occurrence of two separate tumours of a scirrhous character in the same breast. In all such cases that I have had opportunities of examining, the tumours differed in size and in the date of appearance, so that although not in direct connection, the smaller could only be looked on as a consequence of the larger.

Miss M., aged sixty years, had two scirrhous tumours in her right breast, one the size of a walnut, the other that of a two years and a half after the operation there was no sign of a return of the disease.

A remarkable specimen of scirrhus of the thyroid gland was shown to the Pathological Society some years ago, by Dr. Quinlan, surgeon to St. Vincent's Hospital. There was scanty clinical history of the tumour; but, on a post-mortem examination, it was found to occupy the left half of the thyroid body; it passed backwards, between the trachea and sheath of the vessels, and compressed the œsophagus against the spine to such a degree as fully to account for some considerable difficulty experienced during life in swallowing even fluids. There were masses of diseased glands in the mediastinum, and the cervical and bronchial glands were much engaged. There was also some cancerous deposit in the kidneys, liver, and pancreas, but the primary tumour was situated in the thyroid gland.

CHAPTER V.

ATROPHIC SCIRRHUS.

THIS term is applied to such forms of cancer as reduce the size of the organ which is their seat below its natural dimensions. The amount of this reduction may be small in the early stages, but as the disease progresses it forms a striking and characteristic feature. Comparison of the two breasts at once reveals the diminution of the affected one in the later stage, but even before this sign is at all well-marked, there are others which may lead us to the diagnosis. The tumour is exceedingly hard and close, and at an early period draws down the nipple with great tenacity. The skin also becomes early attached to the tumour, without acquiring the coarse and hypertrophied texture common to lardaceous cancer. At no time is the tumour large; it is at first a mere nut and seldom reaches the size of a pigeon's egg. Not only is it hard as a stone from the commencement, but the fibres which radiate from it to the skin and other neighbouring parts are short and firm; so that if it be seized between the finger and thumb it will be found to have strong attachments. According as it advances, it seems to draw into itself by slow degrees the entire gland, puckering it up and shrivelling it, drawing down the skin in numberless points, at first about the nipple and then over the whole breast, and mass. This contractive action prevents the tumour from acquiring a large size; the fibrous tissues are so powerfully shortened and drawn together as to leave few loculi for the deposit of cancer-cells; for the same reason there is no infiltration of the skin with cancer-cells, and as a consequence the lymphatic glands are not enlarged; yet, owing to the same contractile tendency, the breast is drawn upwards and outwards towards the axilla, so that the nipple lies an inch and half out of its proper position.

In this form of scirrhus we have the nearest approach to a natural cure of cancer, and from a careful appreciation of its phenomena we may learn to imitate the indications which nature gives us. To what, we may ask, is this powerfully contractile tendency due which holds in check the otherwise deadly deposits of cancer? If we examine a section of atrophic scirrhus we find it hard and tough, so close as to show a polished surface in which scarcely a trace of structure can be seen by the unassisted eye; here and there, especially on the outskirts of the tumour, a few loculi of extreme minuteness can be traced filled with a yellowish-grey and softer material; the colour of the denser parts is a blueish-grey. A few dots of a buff-yellow are scattered on the surface, and perhaps a streak or two of white. There is little creamy juice to be had without much scraping and pressing of the tumour. On using the microscope the usual cells of chronic cancer can be seen abundantly in this juice and in the grey contents of the loculi; the buff spots are composed of cheesy remains of dead cancer-cells, broken up in dusty fragments and in every stage of oily degeneration. The white lines are the remains of ducts, and the bulk of the tumour is a mass of condensed cicatricial tissue (similar to that found in old wounds and the scars of long healed burns). This is the result of a long gland. As in cicatrices of all kinds, especially of burns, and as in the chronic inflammation of the liver from cirrhosis, the tendency of this material to contract is most powerful. It seems to squeeze the life out of the proper gland-cells and deposited cancer-cells, and in time there are no loculi left in which the latter can accumulate. Slowly yet persistently this contraction of the fibrous basis of the gland progresses, until at length there is a degree of stony hardness produced that would be almost incredible, and this without any attempt at development of cartilage or osseous material, such as we often find in cystic tumours. The decrease in size is generally well-marked; in a few of the rarest cases it is so extreme as to leave no outward trace of a breast; but such a remarkable diminution is the result of many years' contraction; it may well be conceived how many causes may arise to alter the character of the disease or carry off the patient before this point is reached.

It must ever be borne in mind that cancer, in all its varieties, is still identical in essence, and that the chronic type may take on an acute development at any moment. A blow or hurt of any kind may set up action in the most indolent tumour. Internal effusions or extravasations of lymph or blood may form a nucleus for the active generation of cellular elements, and the most malignant fungus may thus take origin from the most benign of tumours. Hence, in all such cases, the surgeon should be on the watch, and should also put the patient on her guard against such an occurrence. As long as the disease is quiescent, no operative interference is justifiable; but the moment a chronic cancer of this type begins to develope into active progress, its career should be cut short. In such a case it is marvellous how much mischief infiltration of skin, and immediate contamination of glands, may change the whole aspect of affairs with a rapidity that will leave little time to deliberate or temporise. In these cases the energy of the morbid growth seems much greater than in those which have been more acute from the outset. They make up, as it were, for lost time. If the progress of the new development is not checked by leeches, ice, sedative lotions, or plasters, early removal of the tumours should be insisted upon. These are cases in which the surgeon must be not only prompt in forming his conclusions, but resolute in enforcing them on his patient. In many other cases he is not justified in pressing an operation. In this he is guilty of culpable negligence or weakness, if he fail to insist upon one. A cordon of leeches should be applied immediately after the hurt is complained of, and followed up by the application of ice, by a sedative lotion of lead and morphia, or what is sometimes better, by soap-plaster combined with opium. Should these fail, no time should be lost in demanding the full removal of the entire mass before the skin becomes further infiltrated with cancer-cells, as will be evidenced by its becoming more thick and coarse. The incisions should go wide of the tumour, as this condition of cancer is prone to recur, and, in such instances, it sends out its roots to some distance.

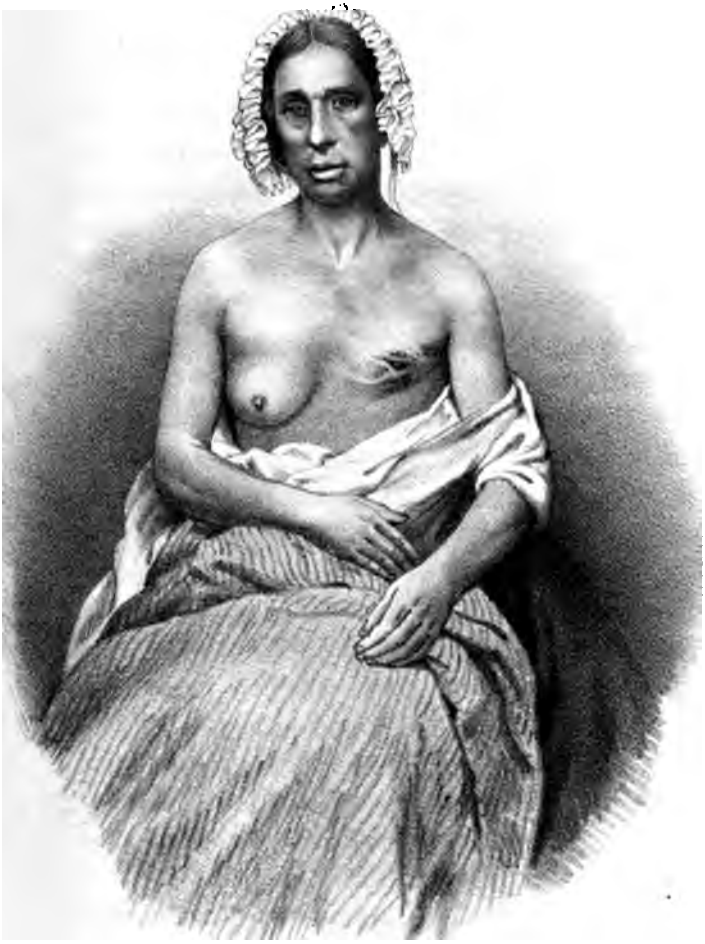
In the ordinary condition of atrophic scirrhus little need be done. Pain is sometimes severe, and is best combated by local sedatives, taking care to select those which do not irritate the skin. The soap-plaster with opium, or the simple opium-plaster, may be applied for a few days at intervals. At other times a pad of cotton to protect from injury is about the best appliance. Ice, or iced water in a small bladder, its effect being carefully limited by a roll of lint to pain, like magic; but it cannot be used long without setting up a state of vascular excitement. It may be well alternated with opiated plaster.

The extreme form of atrophic cancer is unfortunately rare. In it the fibrous basis of the gland is condensed and contracted so powerfully as to reduce the diseased gland to a minimum. Many years may be expended in bringing about this result, so many that this form of cancer is rarely fatal. In one instance with which I was acquainted, twenty-nine years elapsed from the time of the first discovery of the tumour to the patient's death from bronchitis at an advanced age. The first surgeons of Dublin and I believe of London had seen and pronounced on the tumour at various times. Some were for removal, others, more wise, were unwilling to touch it. All agreed that it was undoubted scirrhus. Slowly and painfully the breast reduced in size, became shrivelled and puckered, indented in points and seamed in lines; the nipple early disappeared and remained at last as a sort of deep set umbilicus, while its situation shifted outwards towards the axilla; the skin, gland, and subjacent fascia became confounded in one solid mass, and immoveably fixed, as much from the rigid parchment-like condition of the integument as from the force of the adhesions, at least as far as the deeper parts were concerned, for there was no possibility of separating the integument from the gland, even by careful dissection after death. The entire breast was not as large as a moderate sized walnut. The section of it was amazingly tough and hard, creaking under the knife like a piece of gutta percha and almost as hard to cut. It was chiefly a semi-transparent blue-grey mass; here and there a streak of white might be observed where ducts had been, and an occasional spot of yellow fat [illegible] which the microscope showed to be the oily remains of cancer-cells; from a fresh section of the tumour scarcely a drop of juice could be obtained by pressure and scraping, but the cancer-cells were abundant in it. The bulk of the tumour was composed of the fibrous basis of the gland, contracted and hardened as a result of long-continued irritation into the closest and densest material.

Of the early history of this case I could obtain no accurate details. Sir Philip Crampton who had first seen the lady, was dead, and Mr. Cusack had not seen her until many years had elapsed from the first appearance of the disease. I have reason, however, to believe that the tumour was never at any time large, that the affected breast was smaller from the outset than the sound one, that the process of condensation was remarkably slow and attended with much dragging pain. The lady's health did not suffer. She filled a position of some eminence in society and had the advantage of the best advice; little however was done beyond sedative plasters and a well-regulated diet. I do not know if leeching were resorted to at an early period; latterly no treatment had been used, for none had been required; the tumour was quiescent, not growing, not decreasing, and not giving pain. There was no post-mortem examination of internal organs, nor was there any suspicion of any internal cancer; death occurred at an advanced age from bronchitis of an ordinary type.

This extreme form of scirrhus must be of the rarest occurrence. I have met with no case at all resembling it in chronicity, or in the perfection of natural cure. Mr. Tyrrel has, however, mentioned to me one very similar, which came under his observation, and which lasted about twenty-eight years; the patient being in a very opposite rank of life from the preceding. I have at present under my observation

PLATE VI



The patient, Katherine Wade (see Plate VI), a widow, æt. 50, observed a small, hard, moveable tumour in her left breast in November, 1859. It was situated just above the nipple, which at first was not apparently retracted. There was a sensation of burning heat in the lump from time to time, which gave her uneasiness and made her come to the hospital for advice. Mr. Rynd saw her along with me, and she tells me that we wanted her to have the breast removed, but that her husband, who was then alive, objected to this, and that she did not go into hospital. The breast gave her no great trouble for two years more, when I again saw her at the dispensary among the extern patients of the hospital. She complained of tightness across the chest, and a dragging feel towards the axilla. I was at once struck with the reduction in the size of the breast; it was less than half the size of the sound one; the nipple strongly retracted; the skin seamed and lined, like one of old Wille's engravings. The feel of the breast was stony. It lay immoveable, fixed to the skin and fascia, and only affected by the motion of the pectoral, which it followed. The situation of the nipple was considerably external to its natural position, and a little higher. From that time to this I have constantly seen the woman, and the progress of the disease in the direction of cirrhosis and atrophy of the gland-tissue, has been steady and remarkable. On two occasions only have I seen any deviation from this slow process of condensation, and both times the change was the result of hard manual work as a char-woman. On one occasion there was a little elevation of the nipple, with some appearance of softening and fissure round and through it. Ice quickly reduced the elevation and consolidated the softened nipple. A few months afterwards a similar excitement arose, with the addition of a trifling redness over the combated, and she continued to earn her bread up to the month of February in the present year (1864), when she was admitted into the Hospital for Incurables. I had a photograph taken of her about a year ago, by Mr. Forster, of Westmoreland Street, which has been faithfully lithographed. It shows well the amount of contraction that existed at that period. It is now much more marked; the little elevations between the seams and lines being flattened and reduced in proportion to the gradual pressure exercised by the contractile fibrous tissue on the proper glandular elements of the breast. The main symptom complained of by this poor woman has been uneasiness, and sometimes severe pain down the nerves of the arm. Her general health has been good, and there is an absence of what is called cachexia. She was able to support herself by selling vegetables and working as a char-woman; but latterly she suffered from ophthalmia, and, being a very great object of charity, she is now admitted into the Hospital for Incurables.

CHAPTER VI.

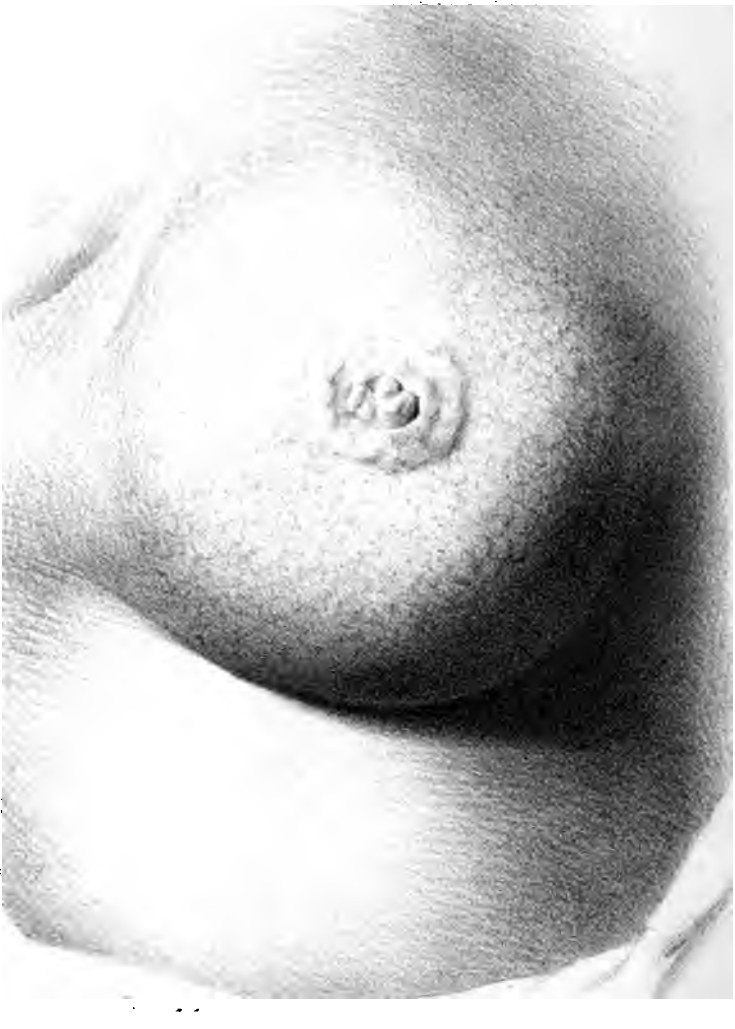
LARDACEOUS SCIRRHUS.

This is much the commonest form of cancer in all situations. It is the variety in which, along with the cancer-cells, there is also a deposit of a large quantity of fat. There are two causes of this. First, the age at which this form of cancer appears. Secondly, the fact that fatty degeneration is the normal mode of death of most tissues, cancer inclusive. The patients most liable to this form of cancer are females, and, in a lesser degree, males, about the turning point of life —forty-five in the female, about fifty in the male. At this period there is frequently a tendency to the development of fat in a larger amount than in early life. In the female, this tendency is well marked; the breasts especially become thus increased in size. Hence, when they become affected with cancer, the combination of the two tissues gives rise to special peculiarities. Lardaceous cancer, however, is often met with in thin subjects. In these it is of more rapid growth, and more actively malignant, inclining, in some of its features, to encephaloid; but, unlike pure encephaloid, not amenable to treatment by the knife, unless at a very early period.

The characteristics of lardaceous cancer of the breast are— an incre early infiltration with cancer-cells; early poisoning of the glands, and in general rather rapid progress.

The breast (Plate VII) is enlarged; it is flattened on the surface, but retains its circular outline. It resembles a small bowl in form, it is sessile, early contracting adhesions to the subjacent fascia. The nipple is drawn in, and the areola round it is also somewhat firmly retracted; the skin is dotted with points of depression, like the skin of a lemon; these are most marked in the immediate neighbourhood of the nipple, but perceptible, more or less, over all the gland. These points of depression correspond to sweat ducts and sebaceous follicles, the fibrous tissues of which are not capable of distension in comparison with the other elements of the skin. Hence, when the cancerous deposit extends into the interstices of the tissues of the skin and fills up every available space, these resist distension and produce depressions at their orifices on the surface. According as the disease advances, those points become more deeply marked and more distant from each other, imparting to the skin the appearance of leather, or of the rind of bacon, and in part affording ground for the name given to this form of cancer. The points become more distant from each other because of the increased interstitial deposit of cancer-cells; and they become more deeply marked from the same cause and from the contraction of the ducts. This contraction is brought about, in all forms of scirrhus, by a slow inflammatory action set up in the fibrous tissues by the irritating presence of the cancer-cells. In the smaller and more chronic forms of scirrhus it produces the stony hardness and the fibrous bands which constitute their peculiar features. In the lardaceous variety the greater deposition of cancer-cells, and the large amount of fat, mask the fibrous bands, and convert the stony hard-

PLATE VII



Lardaceous cancer is essentially infiltrating. Hence, we seldom can recognise it in the breast as a defined tumour. It is not like simple scirrhus, loosely rolling at the outset, with few and comparatively slight attachments. In its earliest recognisable development, the gland is partly infiltrated; and the infiltration extends by imperceptible gradations into the rest of the gland and its coverings. The disease is clearly, from the outset, a tumour of the breast, rather than one in it. Almost invariably this form of cancer is centrally situated in the breast; it commences by a small raised hardness under the nipple, or in its immediate vicinity, which quickly spreads, until it is almost equally diffused all round the nipple. At the same time, with the increase of size, the flattening of the breast begins, and the retraction of the nipple. The process of infiltration goes on until all the gland is implicated, and the tumour becomes fixed to the skin and to the fascia behind it. The glands in the axilla become hard and knotted, and the brawny condition of skin is often to be traced along the track of the lymphatics, on to and over the axillary glands; also in the direction of the clavicle, along the lymphatics which lie there. Scattered cutaneous tubercles, also, are sometimes found round the margin of the principal tumour, and form an additional bad sign—one of the very worst. While the diseased breast enlarges, the sound one is probably growing less, in accordance with a general diminution in size. This loss of substance is often a loss of fat rather than muscle—at least of subcutaneous fat; for, strangely enough, while this fat is being absorbed, the muscular tissues, for a time, are not apparently diminished in bulk. Yet, if an opportunity is afforded of inspecting them, they will be found deficient in genuine muscular tissue, its place be quently the disease has run its course before this has time to occur. The modes of termination of this form of scirrhus are various. The most common is by the formation of an ulcer with small fungating surface, irregularly nodulated, with hard edges, discharging profusely a fetid pus, and, perhaps, occasionally some venous blood. Large soft fungous masses are not common in lardaceous cancer; yet they are occasionally met with. The spread of the disease to glands in the axilla, and above or under the clavicle, may add to the distress, but they seldom directly tend to produce death. Cachexia is developed in general, but the hectic fever which kills the patient is less frequently due to it than to the drain from the open sore. I have formed no reliable opinion on the frequency of internal deposits in connection with lardaceous cancer as a primary disease.

One form of lardaceous cancer there is, in which death is due rather to intense pain and consequent nervous exhaustion than to any losses which the system sustains. It is where this form of cancer attacks the old, the feeble, or the already emaciated man—in these subjects it runs a course very similar to encephaloid under the same circumstances; there is, in fact, between them no further difference than this—encephaloid kills such patients in a very few months; lardaceous cancer may run on for a year or even two before death results; the latter too is much harder and more brawny. The situations where I have observed lardaceous cancer in the man are the glands of the neck, especially about the parotid, the gluteal region, the skin of the face (as a secondary result of malignant polypus), and the glands in the axilla.

The patients whom I have seen affected with lardaceous cancer in the neck and axilla were men past the middle period of life, of sallow complexion, thin and worn, with little vitality frightful pain and killing by it alone, before extensive ulceration had time to occur. The tumour in all the cases was rapidly fixed by its infiltrating tendencies to the skin, to the fascia, and to the septa between the muscles and round the vessels of the parotid or axillary region; the skin had the same brawny feel and look as in the better known form of the disease in the female breast. I do not remember to have seen ulceration but in one case, and in that it was trifling in extent and depth, and of very recent occurrence. From their nature such cases do not remain long under observation. The surgeon can do little for them even in the way of alleviating their pain, so that they soon tire of him, and go to another and another.

I have seen two extreme cases of lardaceous cancer of the gluteal region; both presented very similar appearances, and followed as far as I could trace a similar course. One was in an old man who for some years used to frequent the hospitals at the south side. He had a large mass of lardaceous scirrhus centrally situated over the sacrum, extending up to the level of the crest of the ilium, and downwards to the anus; it projected considerably backwards, and gave him all the appearance of wearing a gigantic bustle; it was painful, but less so than lardaceous cancer in the neck. As may be supposed it was pre-eminently inconvenient; progression was difficult and ludicrous, and repose by no means easy in the sitting posture. Standing or lying were the only positions of even comparative comfort. It had originated in some injury over the sacrum, and seemed to spring from the periosteum. Of its cancerous nature I could only judge by analogy; it might have been fibro-plastic; but I believe it to have been cancer from its appearance and feel, from the character of the skin, and life, and having examined the tumour after his death, I have no doubt of its scirrhous nature.

Mr. Wharton gave the following details of his case to the Dublin Pathological Society.

"The subject of the disease was a man between forty and fifty years of age, of strictly temperate habits, and habitually in the enjoyment of good health; his aspect, however, exhibited a strumous tendency. He was in the employment of the Ballast Board.

"The tumour originated from an injury received nine years ago, during the shipping of a barrel of salted meat, on which occasion, and by which means, he was thrown upon his coccyx. The immediate effect of the accident was violent pain in this region, attended with syncope, in which state he was carried to the cabin.

"After the lapse of some time, a small swelling, about the size of a bantam's egg, presented at the left side of, and close to the anus, on account of which he placed himself under the care of Dr. Beauchamp, with Mr. Cusack occasionally in consultation. The treatment chiefly consisted in the internal and external use of iodine. The tumour, however, continued to increase, and the pain to become more decided. After Mr. Cusack's death, Mr. Hutton was consulted, and subsequently I saw him, but only on one occasion, after which he passed into other hands. The glands in the groin were at this time involved, and the pain intolerable, being apparently due to the implication of the great sciatic nerve. During the recent Christmas recess, death having brought his sufferings to a close, I received an intimation that I might examine the body, a privilege of which I at once availed myself, as well as of the kind assistance of Mr. Foot, who indeed made the

morte [illegible] ation. The autopsy, which was condu necessarily incomplete, yet so far satisfactory as to enable me, by permission, to remove the tumour now submitted to your inspection, a matter of some difficulty, by reason of its firm attachments to the skin and subcutaneous tissue by means of tough fibrous bands, which resisted all attempts to sever, except by the knife. The subcutaneous tissue had lost all its cellular appearance, being converted into a thick, opaque, and gristly substance.

"The tumour itself was composed of a dense mass of large and firm granules, resembling fat; and its colour, on section, was pinkish, with the exception of a small portion at the base, which had the character of cartilage."

Mr. Wharton was good enough to submit the growth to me for microscopic examination. I found it to present undoubted marks of cancer in every portion. At the hard part, pointed out by Mr. Wharton as the original site of injury, I found, along with much fibrous tissue, an abundance of cancer-cells, of the type generally found in scirrhus. In the portion of a reddish colour, and in texture somewhat like erectile tissue, the cells were very variable in size, the majority being the ordinary lymph-cells; a comparatively small number were cancer-cells, and a great many were intermediate between the two. In the large subcutaneous loculi, filled with a soft granular matter, there was much fat and oil, and a quantity of very large cancer-cells of the acute or encephaloid type, and recently deposited. Here and there through the tumour were spiculæ of bone; in the erectile portion was a quantity of blood, much fibrous tissue, and some yellow elastic fibre. It was, to sum up, a scirrhous tumour of long standing, the result, as cancer generally is, of an injury. It was of slow progress until near the end, when a rapid deposition of the morbid mat

The co-existence of cancer-cells with lymph-cells, and intermediate forms, in one tumour was remarkable. It tends to bear out the view of the common origin of these morbid cell-growths which I have so long inculcated; the presence of the lymph-cells in the portion which resembled erectile tissue, the cells of scirrhus in the hardest and oldest part of the growth, and the encephaloid-cells in the more recent, should teach us to examine doubtful tumours with care, lest one portion should contain morbid elements different from another.

The case of lardaceous cancer of the skin of the face, which I have mentioned above, was an awful example of rapid and general poisoning in a young subject. The patient was a baker named McKenna, from the County Wicklow, æt. 18, who had complained of some difficulty of breathing through his right nostril after an attack of measles. A polypus quickly made its appearance in this situation; the skin of the nose, forehead, and face became rapidly infiltrated with cancer-cells, giving the skin a most remarkable appearance; it looked exactly as if seen through a pocket-lens; this condition extended over all the face and neck, the glands of the neck became enlarged, his head swelled, his features became distorted beyond belief, his breathing became affected, and finally he died exhausted by pain, dyspnœa, and difficulty of swallowing, in a year and a half after the first symptoms of polypus.

There was nothing about his history, or that of his family, to throw light upon the virulence of the cancerous development which attacked him. He was ill-fed and hard worked, but not more so than thousands of other young men, and there was no hereditary taint traceable. Timely removal of the polypus might have checked the spread of the poison, but it had already invaded the skin of the nose and face have been more than probable. From these cases, to which numbers might be added from my own case-book and from published records, the conclusion we must come to on the subject of lardaceous cancer is, that it is pre-eminently the most unfavorable type of cancer; certainly it combines the worst features of the acute and of the chronic types; in the breast it is difficult to remove by operation, even at an early period; it leaves but a short margin of time for operation, and, under the best circumstances, it is prone to return. In many situations no operation is possible. As a rule, it kills rapidly; the exception being when it is situated in localities like the gluteal region, where great extension of the disease may go on before any vital part is affected, or any large vessels, lymphatics, or nerves, are implicated in it. Unfortunately, it is a common form of cancer; perhaps a large majority of cancers are more or less lardaceous. Pure scirrhus is rare; so is pure encephaloid; atrophic scirrhus still more so. Lardaceous cancers vary in degree, but the majority of cases of scirrhus present this feature to a more or less definite degree.

CHAPTER VII.

TREATMENT OF SCIRRHUS.

Were I to detail all the medicines and appliances which have from time to time been vaunted for the cure of cancer, I might almost write down the entire Pharmacopœia. A vast number of medicaments which enjoyed a greater or less popularity in their time have sunk into well-merited neglect. Many of those which have held their ground with greater tenacity owe the credit which they have enjoyed to their action on non-cancerous tumours; and many of those which we still habitually prescribe are mere tonics, or else act beneficially rather on the adjuncts and accidents of the disease than on the really cancerous portion of the tumour for which they are exhibited. Unfortunately for human suffering, no direct antidote to cancer has yet been discovered. The nature of the growth, as a tissue highly abnormal, but of natural parentage, might lead us to suppose that such medicines as produce absorption of the less abnormal lymph-cell would also cause absorption of the cancer-cells; but in this expectation we are as yet disappointed; the most that general medicines have done so far is to improve the general health, while local applications at the best do no more than remove inflammatory complications and check the rate of growth. These good results, though imperfect, are not to be despised. Where operative interference is justifiable, the judiafter operation, will be followed by signal advantage; while in such cases as may not be touched with the knife or caustics much may be done to retard the progress of the disease and to alleviate suffering.

Operations for cancer should not be undertaken without due preparation; neglect in this particular will often mar the best-planned proceeding. Thus, when we find a cancerous tumour hotter than a corresponding healthy part of the body —when its most prominent points are red and tense, either unusually hard or tending to become soft—when there is œdema of the skin, with a glazed look on the surface—if there be an increased feeling of weight, some throbbing, and a good deal of darting pain—even though the tumour be loose in its attachments, and free from glandular complication—we should not be justified in using the knife without first lowering the inflammatory action. A number of leeches may be scattered over the tumour, and a considerable amount of blood withdrawn with benefit, provided we do not stop here. Should we do so, or only follow up the leeching with the usual fomentation and poultice, we should probably do more harm than good. It will be advisable, in about twenty-four hours after leeching, on the removal of our second poultice, to apply steady and persistent cold lotions or pounded ice in bladders. Should the part be too sensitive to allow ice or even a spirit lotion constantly, warm fomentations may be applied alternately with these, or a well-spread plaster of belladonna or opium may be applied, with as much pressure on the tumour as will be borne. Ice can be applied in a day or two over the plaster. By these means very considerable irritation or even inflammation may be subdued, and a tumour which could not at first be safely touched with the knife may avoided. If we direct our attention to the point, we shall readily perceive how much of an enlargement is due to cancerous deposit and how much is merely inflammatory exudation. All the latter may be removed by careful antiphlogistic treatment, but we must be cautious not to apply leeches or fomentations to cancerous tumours which are not the seat of this exalted action. The interference with their circulation, the handling, and the excitement caused by heat, may do infinite mischief where there is no inflammation to subdue; a chronic torpid tumour may be stimulated to rapid growth by such ill-advised practice.

The exhibition of iodide of potassium internally is of occasional service in the after treatment of these cases, that is to say, after leeching; simultaneously with the application of ice, doses of from two to five grains, twice or thrice daily, may be given. The use of the two is not contradictory, for where inflammation has existed, some more or less perfectly organized lymph will have been deposited, for the removal of which the internal use of iodine will be indicated. I have not found iodine externally a safe application; the local irritation it produces is not free from danger. Our great efforts should be directed to subdue all local action, or at least reduce it to a minimum; and as iodine, to be of use externally, must stimulate the surface considerably and continuously, I conceive it is safer to avoid its use. Should a case seem to require it, equal parts of collodion and tincture of iodine will be found a good combination; the contraction caused by the collodion prevents to some extent the injurious reaction of the iodine; it must, however, be applied seldom and sparingly.

Under the constant application of ice and the internal use of iodide of potash, great improvement may be effected in decrease in the size of the tumour may ensue, as well as a disappearance of the heat and pain; the œdema of the skin will lessen; all that is due to simple exudation will disappear; and where extra hardness has characterised the tumour, it will decrease. On the other hand, the prominent portions which may have been softened, and apparently on the point of fungating, will get less prominent, becoming at the same time paler and more firm. All the signs of approaching acuteness will subside, and the tumour may even be kept in a quiescent state for a considerable period. There are many other phases of scirrhus in which ice is of use, both as a palliative and as a preparer for operation.

Bromine and its compounds seem to me to exercise a beneficial effect in cancerous enlargements of gland-tissue and cutaneous infiltrations, where there is no actual inflammation to combat. There seems little doubt that bromine acts upon glands as an indirect sedative, allaying excessive irritability and diminishing both pain and vascular excitement. The tincture, varying in strength from fl. ʒss to fl. ʒj to the ounce of spirits of wine, may be freely applied over the enlarged gland or infiltration. It gives immediate pain, and will blister the skin if too strong. As bromine is immediately decomposed by oils, any excess is easily got rid of by smearing the surface with oil after a few moments. The skin is red and painful for an hour or so after the application; the pain and soreness then subside, and the patient has ease from the special pain of the enlarged gland for twelve hours or thereabouts. The tincture can be applied night and morning for weeks in this way; with care, blistering need not occur, and a slight but steady diminution of the gland will generally result. Even in bad cases much benefit is obtained from this use of the tincture of bromine. The bromi

Alternately with iron, this course can be carried on for months. I have seen much benefit from these measures.

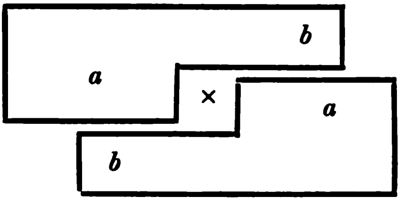
Our great object in applying any local treatment to scirrhus is either to render it inactive, to retard its growth as much as possible, or to prepare the tumour for removal if it be a suitable case and the patient acquiesce.

More directly sedative applications are numerous, but all are not equally effective. The most powerful we possess is ice; a few morsels are to be put into a bladder or thin gutta-percha sponge bag; a circle of carded cotton is put round the tumour, for the double purpose of confining the action of the ice and of absorbing accidental moisture; the bag is to be fastened by a cord to the bed-rail, a nail in the wall, or other convenient place, so as to enable the patient to let as much or as little of the ice come in contact with the tumour as is agreeable. If any chill is produced by the cold application, a warm drink and flannel vest will counteract it. These minute directions are not to be despised; neglect of them may cause unnecessary mischief, such as bronchitis or even disseminated cancer of the lung or pleura; and I have heard able surgeons object to the use of ice for these reasons. When ice has been once applied, if it is well borne by the patient, it should be kept up for days, and even weeks; it is surprising how small a cancerous breast will become under its persistent use. It is most beneficial in the more chronic cases, and is one of the most invaluable aids we possess towards producing or keeping up the atrophic form of cancer, the form to which we may apply the term of a natural cure. Even the worst type, the lardaceous, is slightly improved by its use; this, as is well known, is the most unpromising for operation. Still, in a comparatively young and otherwise healthy person, we shall be unwilling to give up all effort to may occasionally reduce the tumour to moderate dimensions, and, what is of more importance, it will so act upon the neighbouring skin as to show us to what extent it is really poisoned; and where we wish to give the patient a chance by operation, it will enable us to give her the best possible. I am satisfied we too much neglect the palliative treatment of cancer, and thus often lose an opportunity of permanently benefiting our patient. The great secret of success in local treatment is to reduce all action to a minimum, and to do nothing to irritate and everything to soothe. This cannot be too often repeated.

Similar in action to ice, but by no means as powerful or effective, is the whole range of evaporating and weak astringent lotions. The solution of acetate of lead, in its ordinary diluted form, as a lotion, is a favorite of some practitioners, while others apply it concentrated. Of the two methods, the weaker is the better. It is a good combination of refrigerant and sedative. Acetate of morphia may be added to it with advantage; a thin muslin rag kept constantly wet with it may answer in the few patients who will not bear ice, or it may be used as a substitute where ice cannot be readily procured. In these days, however, a place beyond the reach of Wenham ice is not likely to be met with. The same precautions against a chill must be used with lotions of all kinds as I have recommended above. An occasional sponging with solution of muriate of ammonia has also been recommended, and may be beneficial. I have no experience of it for cancer; for certain cystic and chronic glandular tumours it is of great service. This, however, comes under the head of resolvent remedies.

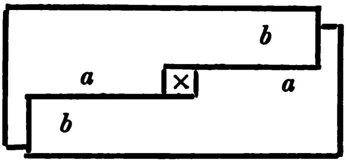
Other local sedatives of value are the Emplastrum Belladonnæ and Emplastrum Saponis cum Opio; the former judiciously used to combine sedative action with resolvent. It may be applied simply spread on a piece of chamois leather of sufficient size, slit to suit the form of the tumour; or it may be applied in long strips put on so as to exercise pressure; the locality of the tumour and the ingenuity of the surgeon will regulate the manner of applying the straps. Where the breast is the seat of the disease, the straps should be from eight to ten inches in length and an inch wide; they lie best by being spirally applied, the centre pressing on the tumour, and the two ends resting on sound skin; each strap overlaps one end of that previously applied, and helps to keep it *in situ.* If greater pressure be required, I am in the habit of using the dovetailed strapping—an admirable and very powerful mode of applying pressure, whether to a tumour or carbuncle, as well as a good form of strapping for the closure of wounds. It was introduced into this country by my colleague, Mr. P. C. Smyly, who saw it used in Germany in cases of simple incised wound. It is applied in the following manner. A strip of plaster three inches wide and eight or ten long is cut into two straps of the shape represented in Fig. 18. The broad end of one strap (*a*) is now applied to the skin, so that the centre of the strap shall fall about an inch short of the centre of the tumour; the second strap is applied on the other side of the tumour, and when

Fig. 18.



made to adhere well to the skin, their centres are made to approximate diagonally, and the narrow ends of the straps (*b*) are fastened down, not on skin, but on the broad portions (*a*) of plaster which already cover the skin; the narrow end of each slip lies along half of the broad end of its opposite neighbour (see Fig. 19); this dovetailing of the straps exercise a very powerful amount of pressure.

Fig. 19.



The ointments of belladonna, atropine, conium, and opium, may be used as direct sedatives, alternately with these plasters, or where, from special cutaneous irritation, plasters are unsuitable. To them may be added, the carbonate-of-lead ointment and the ointments of the subacetate or iodide of lead, the last of which has been unaccountably omitted from the new Pharmacopœia. These, with the iodide-of-potassium ointment, will all be of use in turn.

Besides the belladonna and opium plasters, I have used the Emplastrum Plumbi, ointments of the iodide or carbonate of lead, bromide or iodide of potash, with varying effect, to glands, whether enlarged by irritation or by infiltration. The extract of conium, rubbed up with water to the consistence of thick cream, has also sometimes seemed to aid in alleviating pain and in lowering excited action in the lymphatics.

As a means of retardi

between the tumour and axilla, with the contemporaneous use of iodide-of-lead ointment to the former.

Of general sedatives, we shall have occasion to prescribe every variety. We must change and combine from day to day. The hemlock tribe have for a long time enjoyed a special reputation in cancer. The extracts of *Conium maculatum*, in two-grain doses, and the Succus Conii, in doses of fifteen to thirty drops, are believed to have a specific action on the lancinating pain of cancer. Hyoscyamus also, in a minor degree, is supposed to alleviate it. Much of the disappointment we too often experience in the use of these arises from the uncertainty of their strength, which varies in almost every shop and at different seasons. Opium in every form and belladonna are also most useful in turn. The state of the pupil will often guide us, when in doubt as to which we should prescribe. If it be dilated, opium will generally succeed; if contracted, belladonna. Where much mental depression exists, due attention having been paid to the action of the liver and bowels, the ethers and the ammoniated tincture of valerian in camphor water will be valuable remedies. Sometimes, when all has failed to procure sleep or a respite from pain, the very unlikely remedy of a strong cup of tea will act like magic; chlorodyne also, in doses of ten or twenty drops, according to the severity of the pain, the extract or infusion of *Humulus lupulus*, or even a hop-pillow, will all serve a turn. Indian hemp, either alone or combined with belladonna, in doses of three or four drops of their tinctures, may be cautiously given to patients who have no head affection. There may be disappointment in the use of the tincture of belladonna, as it is exceedingly variable in strength. I have found five drops of a dark tincture a full dose when thirty of a paler quality was not too much, although each was bought at to give so large a dose without first feeling our way cautiously with smaller quantities, gradually increased.* The colour is some guide, the pale tinctures being generally weak. Good air, cheerful society and attendants, are calmative aids by no means to be despised, though we can scarcely class them as direct sedatives. It will be the duty of the medical man, while he avoids the holding out of undue hopes, to endeavour to give the patient as much mental quiet as possible.

The resolvent or absorbent treatment of cancer has been a favorite domain for experimentalists in all ages. I have already given my opinion that we have little, if any, power to procure the absorption of a cancerous mass; we may retard its growth, or even diminish its apparent bulk, by removal of non-essential portions, such as inflammatory products, fat, gland-tissue or muscle, and by so doing we may greatly improve the condition of the patient. Of the means to effect these objects, after all inflammatory action has been subdued, pressure is the most powerful. Recommended by Young in 1809, by Travers, Bayle, Recamier, and others, it has from time to time been brought forward, and as often cast aside. In moderation, it may be most beneficial for the above purposes, and even in the estimation of those who, like Sir Charles Bell, condemned it, it may be most useful in alleviating pain; but it must be used with moderation, for, when carried too far, the tumour becomes flattened, without being absorbed. In fact, undue pressure seems to provoke reaction and increase of size, with much increase of pain. Even where the latter is not complained of, mischief may be done. Thus, in scirrhus of the breast pressure has been carried so far as to force the tumour through the ribs and to cause their inter-

* By the new Pharmacopœia this tincture has been assimilated in strength

stitial absorption. There are various ways in which pressure can be well applied in scirrhus of the breast. Broad straps of plaster, spirally arranged—elastic rollers, with layers of soft cotton interposed—sheet lead, adapted to the form of the tumour, and kept on by compresses and bandage—have all been of service. Dr. Neil Arnott's apparatus of spring air-pad and belts would appear to be one of the best; it does not confine the chest, and admits of a uniform and easily graduated pressure. Where it cannot be had, small pads of vulcanized india-rubber, filled with water, may be made to supply its place, or a thick compress of raw cotton bandaged over the breast with a moderate degree of tightness will exert sufficient pressure.

Of special treatment of lardaceous cancer, apart from the knife, not much can be said. All we can do may be epitomised in the one direction—do nothing to irritate, do everything to calm and subdue irritation. Leeches occasionally round the tumour, if it be hot, painful, or rapidly enlarging—iodide-of-lead ointment, iodide-of-potash ointment—cold, either by iced water or evaporating lotions—gentle compression by india-rubber air pads—may one or all be useful in delaying progress; they may also reduce the size of the tumour by producing absorption of some of the fat or of the simple inflammatory effusions which tend to increase its bulk; and in some rare cases such means may so diminish the size of the tumour as to enable us to remove it with more safety; this will especially be the case if we can get the fat absorbed, as the presence of much fat constantly masks the outlying infiltrations. It is of consequence, then, as regards relapse, to be sure that we have taken every particle away, and this too without a wound of unnecessary dimensions. For these reasons, rather than with any hope of procuring absorption of pressure in lardaceous cancer. The combination of iodide of potash with chlorate of potash is excellent for facilitating the removal of oily tissues under any circumstances, and in this form of cancer it may be used along with ice or pressure; not that it will remove or destroy any of the cancer-cells, or even facilitate their death, but it may directly diminish the tumour by at once removing such cells as have parted with their vitality. I generally give ten grains to fifteen of the chlorate, and one to five of the iodide.

The iodide of arsenic combines the two most efficient absorbent medicines we possess. Arsenic has been used for cancer for upwards of 450 years, in general as a local caustic, but of late years internally, either alone or combined with iodine, as recommended by Walshe and Dr. A. T. Thomson. The iodide of arsenic is given in doses of the sixteenth or twelfth of a grain. Spencer Wells speaks highly of the bromide of potassium as an absorbent in doses of five or ten grains, in cod-liver oil, three times a day. The bromides require care and watchfulness, owing to their occasional effect on the head. There is no doubt, however, that where they agree they exert a remarkable influence on gland-tissues in a hyperæmic or hypertrophic state, and that in this way the good effects spoken to by Spencer Wells may be accounted for. He states that under the use of the bromized cod oil, the pain quickly disappears, the tumour shrinks, and its adhesion to the integuments and muscles becomes less—"that a tumour which was firmly attached to the surrounding parts becomes moveable, detached, as it were, and is felt like a hard, moveable, senseless ball beneath the skin." In cases where delay is advisable, with a view to lessening the tumour by leeches, ice, or pressure, there can be no reason why the bromides seen marked benefit from ten- or fifteen-grain doses of the bromide of potassium, with doses of the Succus Conii, gradually increased from twenty to thirty drops. The bromide of ammonium in similar doses has also some good effect. The bromized oil may be given twice a day, with the conium in the evening.

As a local sedative to cancerous ulcers, the combination of acetate of lead with creasote will be found most useful where the smell of the latter is not objected to. A drachm of each to a pint of water is a good average proportion; it may be applied with a large soft camel-hair brush, or on lint soaked well with it, and in either case the ulcer may be immediately covered over with oiled silk.

A fig poultice is a grateful application to foul cancerous ulcers; the fig should be boiled in milk until soft. Poultices of scraped carrot are also favorites with some surgeons. I prefer the figs. The permanganate-of-potash solution, of the strength of an ounce to the pint of water, is a good cleanser and deodorizer, and has, I conceive, at least a temporary power of relieving pain.

Where passive hæmorrhage from a cancerous ulcer is not checked by cold water, ice, or weak muriate-of-iron solutions, infusions of matico or the direct application of the leaf itself may be effectual. I have also seen solutions of tannin of service in this way; a lotion composed of four parts of tannic acid to thirty of water has been recommended by Neligan for this purpose. As a simple astringent to cancerous ulcers, apart from its use in hæmorrhage, I know nothing equal to the muriate of iron. Either the tincture, in the proportion of ʒss to ℥viij of water (B. P.), or the solution of the perchloride (ʒss Pravaz' solution to ℥viij or ʒx of water) are what I generally order opinion as to the choice of means when cases of cancer are suitable for operation. There is no comparison that the knife is more ready and safe and less painful than caustic of any kind, now especially that chloroform is available to relieve the patient from the pain of the actual cutting. None but those who are timid and unfit for the profession of surgery, or those empirics who trade upon the fears of suffering human nature, will use caustics by choice or as a rule. There is no doubt whatever that the irritation set up by the use of caustic produces an exudation infinitely more favorable for the redevelopment of morbid growths than the fluid poured out for the repair of a clean incision. It is not true that caustics have any selective power, by which they can seize upon morbid elements and spare those which are sound. In a word, caustics are slower, less sure, and more painful than the knife; still, as some patients will be met whom no amount of reasoning can induce to bear a cutting operation, it will be as well to review such caustics as have the best reputation, and to point out, as far as practicable, the special advantages of each.

Mr. Syme's remarks upon the use of caustics in scirrhus are most judicious; in a few words he compresses nearly all that need be said upon the principles involved in their application—"It has long been a settled principle in surgical practice that malignant tumours or sores should be either allowed to remain free from disturbance, or completely removed, since tampering with them, by irritating applications, is the most certain means of exciting disease in the lymphatic glands or other textures. If caustic is ever used for destroying malignant textures, it should therefore be of such power and so employed as to strike at once to the root of the

il."

good resumé of the various caustics and specifics which have from time to time been vaunted for the cure of cancer. He approves of their use in certain cases, as when the cancer is superficial and extensive, or disseminated, or ulcerated, with considerable anfractuosities, or sending off distant roots; also in cases suited for excision, where the patient dreads the knife, or when a return of the disease appears in or round a cicatrix; in doubtful cases, or, lastly, as a palliative, where the knife dare not be used. He prefers the Vienna paste when the disease is not deep and not ulcerated; caustic potash or solid Vienna caustic for ulcers and anfractuosities. M. Canquoin's plaster, composed of one part chloride of zinc to two of flour, he would apply to tumours which are of medium size and lobulated; this is a convenient application, as it will not burn the sound skin, and, by regulating the thickness, we can burn to any depth we please; it is horribly painful, because slow in its action. Velpeau's favorite caustic is sulphuric acid made into a paste with saffron, which burns to any depth, dries, shrivels, and contracts the tumour, and if well managed will destroy the morbid growth; it is very troublesome, from its lightness and from its burning everything it touches; the best mode of limiting it is by a thick layer of adhesive plaster applied all round the tumour. Velpeau sees no reason for preferring arsenic to other caustics.

Syme, seeing the difficulty of using the saffron paste, as well as its expense, suggests sawdust as a cheap and efficient substitute for it in the office of forming a paste with the strong sulphuric acid. This is a decided improvement for many reasons.

Dr. James Arnott has combined the treatment by chloride of zinc with congelation. He considers that this plan of removing tumours produces neither shock, inflammation, nor probably no more dangerous than any other method, inasmuch as the use of ice seems to counteract the otherwise inevitable mischief of caustic. The only special danger to be dreaded would arise from the prolonged application of intense cold to a tumour in the neighbourhood of the lungs. Congestion of the lungs, or even a tendency to the development of cancerous tubercle in the lungs or pleura, might very reasonably be anticipated as at least an occasional result of such treatment. Dr. Arnott details a case in illustration of this combined method of applying ice and caustic. "On the 28th November the patient had a circular portion of the right breast, three inches and a half in diameter, and enclosing a large occult cancerous tumour, congealed for two hours by a frigorific mixture, at a temperature ranging from 8° to 12° below zero, Fahr. This mixture, which was frequently renewed, was confined to the part by a cup or broad flat ring of gutta percha, having a short flexible tube, closed by a stop cock, issuing from its lower border. Immediately after removing the mixture, nitric acid was applied to the skin, and after the acid a layer of chloride of zinc paste was placed on it, and allowed to remain until the next day. There was no expression of pain made during or after these proceedings, but being questioned on the subject, the patient stated that for about five minutes, while the congelation was being effected, there was a sensation of tingling, like that produced by a mustard plaster. The uneasiness from this was not sufficient to interrupt her account of the origin and progress of the disease which I had requested her to give just as the congealing process commenced. The tingling of short duration was the only disagreeable feeling experienced during the day. She took her usual dinner while the congelation continued, and slept well mixture, I had taken pains to benumb the part very gradually; and after its removal another refrigerating mixture was applied, for about eight hours, over the chloride of zinc, but kept separate from it by a very thin intervening membrane. By the middle of the next day, a large white slough or eschar had been produced by the combined measures, of exactly the dimensions of the lower opening of the gutta-percha vessel, which, from having been previously heated, adhered firmly to the breast till midnight (twelve hours). For the purpose of ascertaining the extent of the disorganization, the slough was cut, in the presence of the resident medical officers, to the depth of an inch without causing the least sensation. No inflammation followed, nor did any redness appear at the margin of the slough till the third day, when its separation had probably commenced. Notwithstanding the continued action of the caustic, which was daily inserted in the manner practised by the French, the patient's general health remained undisturbed until she left the hospital. The lower part of the eschar separated on the 21st December (24th day), and when I last saw her, at her own residence on the 7th January, the cicatrization was nearly complete. As her appetite had remained good during the whole of this period, and she had been able to take exercise in the open air, her strength continued unreduced. There had been no occasion to have recourse to cold again for its anæsthetic effects, and the only medicine taken by her during her stay in the hospital was two laxative pills.

"Questions of considerable importance as regards the removal of growths by congelation and caustic are:—whether one slough should be allowed to separate by the natural process before another is formed; whether a fresh slough should be made under a previous one; or, finally, whether the sloughs means in order to give these combined measures ready access to the living parts beneath. Each of these plans may be the most appropriate to certain cases. The first is the most tedious, unless a very powerful and deeply operating combination of these agents be employed, and in that case there is danger of the destruction of texture extending too far. The making of incisions in the slough for the insertion of caustic has been practised for the last fifteen years by M. Girouard, a physician at Chartrés, although it is uncertain whether Canquoin, the celebrated cancer curer, did not precede him in the use of a similar method. The surgeons at the hospital at Chartrés sometimes burn holes with cylinders of caustic potash and lime, into which they insert chloride-of-zinc paste; and more lately, caustic has been inserted deep in the flesh, either by previously puncturing the part with a knife (the practice of M. Maisonneuve), or by injecting liquid caustic through a capillary tube."

The treatment of the notorious Dr. Fell, to which such undue prominence was given by the want of judgment displayed by some of the surgeons of a metropolitan hospital, consisted, as is now well known, of chloride of zinc. The powder and decoction of the *Sanguinaria Canadensis*, or white flowery puccoon, were used as a blind, and under cover of them this venerable caustic reappeared on the stage of London surgery as a wonderful discovery. The ostentatious parade of the merits of puccoon has been succeeded by a significant silence. No one would now, I suppose, be so hardy as to attribute to it the smallest importance as a remedial agent. Fell's plan consisted in destroying the skin with nitric acid, and then inserting in the eschar strips of lint smeared with a paste of chloride of zinc and puccoon; horribly painful and t would have freed them from their disease in a moment, and, under chloroform without pain.

The insertion of arrows of caustic round a tumour has been put in practice in Paris by Maisonneuve. I am not aware if it has many followers in this country. I find in the 'Edinburgh Journal' for August, 1858, a good description of the process of making and applying these arrows, in a paper by Mr. Alexander, of Wooler: "Two parts of fine arrow-root were mixed with one of chloride of zinc; and while the paste, which such a mixture forms, was soft from the addition of a little water, it was rolled out into a thin sheet, and then divided into arrow-headed pieces of about three inches long, each tapering to a fine point at one extremity, and rather less than a quarter of an inch broad at the other end. After drying, the paste becomes hard, and if the points are fine the arrows are capable of overcoming a considerable resistance. After putting the patient under chloroform, a series of deep punctures was made round the circumference of the tumour with a narrow bistoury, and one of the arrows forcibly inserted into each immediately after it was made, where it was allowed to remain. In about four days the whole growth may be detached in one large black mass. ...The arrows should be inserted in considerable numbers, not more than an inch or three quarters of an inch asunder; the points from the opposite sides should cross one another in the centre of the morbid growth, and they should be inserted as near the basis of the diseased parts as possible, as nearly as can be accomplished in the line of demarcation between the sound and the unsound parts."

To this mode of procedure I think few surgeons here will give in their adhesion. The pain, in spite of chloroform, must be intense, and the irritation caused by so many arrows action and so to cause a rapid reappearance of the disease *in loco*. That such is the usual course of cases which have been submitted to caustic treatment, I have unhappily had ample proof. As a rule, the slough produced by caustic leaves an ulcer the margins of which are cancerous, and the further use of the supposed remedy but serves to extend the disease. I have known an ulcer no larger than a crown-piece enlarge its dimensions under repeated application of caustics to the size of a small plate, and that in a very few weeks.

Landolfi's paste has acquired considerably notoriety. He is, or was, a physician of high repute, at Naples, and held an exalted official position under the Bourbon dynasty. His treatment of patients was above all suspicion of quackery, and, making due allowance for the partiality which all men will have for their favorite mode of practice, he seems to have a better tale to tell than most upholders of a caustic plan of treatment. His procedure has been at all times open and above board and therefore demands our attention.

The caustic he uses is composed of the chlorides of bromine, zinc, gold, and antimony, in varying proportions; the essential element is the chloride of bromine, which he looks upon as exercising a specific influence over cancerous organisms. He generally uses the four chlorides in equal quantities, mixing them with flour or liquorice-powder so as to form a viscid paste. The chloride of zinc is indispensable in ulcerated cancers, in which it acts as a hæmostatic. The chloride of gold is useful only in encephaloid cancers, in which he conceives it to have a specific action. Cancer of the skin (epithelioma) and lupus, and small cysto-sarcomata are treated with the bromine mixed the depth of half an inch for every line of paste. The sound parts are to be protected with an ointment of four parts chloroform to thirty of cold cream, and the paste is applied on small compresses laid side by side, or imbricated, so as to ensure close contact with every part of the tumour; a layer of lint and a few strips of plaster suffice to retain it *in situ.* To a tolerably sharp sensation of heat, pains, often very intense, succeed, and last from four to six hours or even longer; during their continuance anodynes (or even chloroform) may be given. The paste is not kept on longer than twenty-four hours, as by that time a line of demarcation begins to form. The tumour will be found in some parts whitish, in others reddish, or marbled with yellow and blue. The caustic is replaced with poultices of crumb of bread or lettuce leaves, or with compresses spread with basilicon, which are renewed every day until the sloughs are separated, which will be from the eighth to the fifteenth day. The wound is then dressed in the ordinary way with water-dressing or ointments, and sometimes, if sluggish, with a weak solution of chloride of bromine, half a drachm to a pint of water, with one or two drachms of goulard. Landolfi considers that the bromine is absorbed and that it alters the cancerous diathesis. In some cases he adds the internal exhibition of the same drug in doses of the sixth or tenth of a drop made into a pill with conium. By these means he conceives that he has frequently modified the constitution so as to prevent a relapse; and in cases beyond cure, to have checked the rapid course of the disease and so far retarded the fatal issue. Whether as a caustic it is superior to others remains yet to be proved. Mr. Solly, who used it in a few cases, was not much impressed with its value, considering Dr. Arnott's method superior to it, without, however, saying much in the value of the bromides as sedatives to exalted glandular action.

The anhydrous sulphate of zinc mixed with sulphuric acid has also been used to destroy cancerous and epithelial granulations. I have used it myself in cases of the latter class; it is tolerably efficient, but like all sulphuric-acid caustics it is hard to limit, and spreading to the neighbouring non-cancerous parts it gives great and unnecessary pain; not only is the pain severe, it is also prolonged, lasting at times for hours. Altogether it is more suited for lupoid ulcers than for cancers; it is slow to penetrate, and the resulting slough is thin and tenacious, taking many days to separate underneath; a tolerably healthy sore will generally form in lupoid and superficial epithelial ulcers, but for cancers it is too weak. Dr. Eben Watson has tried it combined with glycerine and with gypsum, and his experience corroborates what I have said above.

Mr. Weedon Cooke vaunts the Manganese cum Potassâ caustic as especially valuable; it is a powerful agent of destruction from the large quantity of oxygen contained in it. The pain though great at the first moment of its application soon ceases. It is a dark green powder which can be dusted upon the ulcer from a small pepper caster; in small quantities it deodorises; for caustic purposes it must be applied in a layer as thick as the granulations to be destroyed, a few drops of water being let fall upon it when placed on the ulcer. When the eschar separates a fresh application may be needed. It is not so painful and is more manageable than Velpeau's favorite caustic of sulphuric acid and saffron.

Dr. Girdwood also speaks of employing the permanganate of potash purpose, and for the latter in the same manner as Mr. Weedon Cooke.

As a deodorant I have often used it both applied to the sore and placed in a concentrated form near it, or under the bed; its freedom from smell gives it an advantage over the chlorides, and it is fully as effective as a destroyer of foul and noxious smells. As a caustic it is too mild to be of any service compared with chloride of zinc or the nitrate of mercury.

A most powerful caustic is the perchloride of iron. It is a dry, grey, cineritious material something like pumice in appearance; it quickly absorbs moisture, and even in a stoppered bottle it changes into a dark brown thick fluid. In this form it is one of the most powerful caustics I know of. When applied to a bleeding surface it checks the hæmorrhage at once, the part contracts rapidly and with comparatively little pain; for the purpose of checking hæmorrhage in fungus hematodes it is most valuable; if the spot that the blood comes from is not within reach, hid as it often is by granulations and clots, a few drops (two or three) of the solution sold in the shops may be injected in one or two places by means of Coxeter's syringe; for the destruction of a tumour such an injection may be practised from day to day in various points round its circumference and deep into its substance until it falls out as a slough; a weak solution may then be used as a lotion, or, if need be, any suspicious hardness in the ulcer may be attacked with the injections again.

It is not a caustic I would select for cases of scirrhus, unless when in an ulcerated and fungating condition, when indeed the characters are more those of acute cancer. Injected into a hard and slow growing tumour I should be sloughing process should stir up a more rapid growth of cancer-cells. I have however found it most useful in open cancer which was fungating and bleeding.

The acid nitrate of mercury, a favorite caustic with some surgeons, is more suitable in epithelial ulcerations than in genuine cancer.

CHAPTER VIII.

TREATMENT OF SCIRRHUS CONTINUED.

I NOW come to consider the question of the removal of scirrhus by the knife. Here, from the multiplicity of circumstances and the great variety of individual peculiarities, it is not easy to lay down general rules. There are probably few points of surgical practice on which greater diversity of opinion exists, few upon which we are all disposed to be so dogmatical in laying down the law. Some are against operation in scirrhus at all, others would cut in almost every instance. In reality much has to be taken into account, the age and appearance of the patient, the existence of hereditary taint, the situation, size, connections, and duration of the tumour, all must enter into the surgeon's consideration. Whether the operation is to be looked upon as giving a chance of life, or only of life prolonged for a few months; whether it is to be undertaken with a view to the removal of a yet unbroken tumour, or of one that by its fetor and discharge is ruining the patient's health; whether it is to be undertaken in the hope of substituting an internal for an external cancer, a comparatively painless for a most distressing form of death; all these, and many other questions, must the surgeon decide who is called upon to give an opinion in a case of scirrhus; nor will the fullest information gathered from the experience of others be of much avail in the decision. A man's own mind made up, often rapidly, upon a survey of all the concomitant circumstances.

To take these various contingencies in order, and endeavour to lay down some kind of general rule:—I should say with regard to age, that the younger the patient is, the more rapid, as a rule, is the progress of scirrhus. In the very old it may be possible to retard the outward manifestation of cancer, and every effort should be made to do so, even if our remedies should run a risk of repelling it to deeper parts; but if the tumour has advanced to a stage when ulceration is imminent, if pain be severe in spite of sedatives, local and general, or if the tumour has already broken up and sloughed in part, so as to render its removal advisable as a palliative, age alone is no barrier to a successful operation. My experience is that aged persons recover operations of this kind wonderfully well, and, as a rule, quickly; though such patients are apt to sink under some capital operations, such as amputations of limbs, they do not necessarily, or even commonly, succumb under these less severe local amputations. I have seen admirable recoveries after the age of seventy, and even seventy-five, and I have read of some later. Age alone then, though it may make us cautious, is no absolute barrier, if other things encourage us to operate. In the young, *cæteris paribus*, operation is less successful, though from the fact of youth, more incumbent. If the disease be acute, it is liable to run a more rapid course in the young, and to relapse more surely than in the old; if it be chronic in its type it is less chronic than in the old; the glandular system is more active; distant and systemic poisoning occurs more readily, and a shorter interval is left us to deliberate. The prospects of permanent cure are small,

the amou

carried on by reason of age. Still, youth is no bar to operation, but rather affords a reason why all chances should be given not only of life and health, but also of prolonged life, even if the prolongation be only for a few months beyond what it would be if no operation were performed.

The aspect or physiognomy of a patient is a considerable guide to us; by these terms I mean, the complexion, the amount of embonpoint, the expression of countenance by which pain or mental anxiety are indicated, the apparent as contrasted with the real age, and all that is known as cancerous cachexia. This last term is scarcely worth retaining in our vocabulary, except for convenience; it has no definite meaning, and is used by various writers to comprise some or all the above points. Much of the appearance of misery and ill health will leave the face of a patient if good nourishment, sleep restored, and pain relieved, impart courage to the mind along with greater strength to the body. I have seen this plainly in cases of very chronic scirrhus where the disease remained dormant for years, or even appeared to decrease. In such patients the improvement in appearance was soon most marked after judicious tonic treatment and mental encouragement. When they began to see that the surgeon's words were coming true, and that the disease was not advancing, the "cancerous cachexia" has vanished, and its connection with depressing influences has made itself apparent; except then, so far as aspect is evidence of permanent inroads on health, it is of no value as a guide in the question of operation. When cancer has attacked any internal organ, such as lung or liver, it will interfere with its proper function, and corresponding injury to the health must follow. I do not believe in the circulation of cancerous blood, but that the blood must be deteriorated in quality where any important of internal cancer produces cachexia; but we seldom, if ever, see the latter while the disease is limited to external parts. I have seen the most extensive cancerous ulceration producing death by hectic, without cachexia; I have also seen fatal hæmorrhage from fungating cancer of enormous size (Plate III) without any diminution in the general appearance of health which had characterised the patient. On the other hand, I have seen extreme cachexia, not distinguishable from what is commonly set down as cancerous, in patients who had no cancer. For these reasons I look upon cachexia as an evidence of disease interfering with some of the principal viscera and preventing the due renewal or purification of the blood, which is their function; if the disease be cancer, the cachexia will be evidence of it; but it will not *per se* enable us to distinguish between cancer and other internal or hidden morbid actions. Hence, where cachectic appearances remain in cases of undoubted cancer after appropriate remedies (tonics and sedatives) have been fairly tried, they must contra-indicate operation, as showing deep-seated internal deposits and consequent deterioration of the quality of the blood.

Hereditary taint is a bad complication, and, unfortunately, a very common one. Paget is clear on its frequency. I have seldom failed to track it on careful inquiry. Still, I can readily understand how Laurence and others lay little stress upon it, and assert it to be by no means so frequent as is generally supposed, for there is a tendency to conceal cancer, and to hide it even from one's own family. I have known children ignorant of the fact that their mother had died of it; how easily then might a surgeon, who was a stranger, be misled unintentionally upon this head. Paget's opinion, fortified by st parents with epithelioma may have children with genuine cancer, and *vice versá*, and the same of other morbid growths: this is naturally to be supposed. Where a tendency to morbid cell-development exists, the exact form of cell may reasonably be expected to vary, if, as I hold, all these morbid cells trace back to a common ancestor, the lymph-cell. And for the same reason I cannot understand, nor do I believe in, the incompatibility of tubercle and cancer as held by some pathologists. Although many of the cases in which they have been supposed to co-exist in the same person may have arisen from the not uncommon error of confounding scrofulous and cancerous tubercles of the liver, still I cannot explain all in this manner. I have seen undoubted tubercle in the lung of the grey miliary type with equally unmistakeable scirrhus of the breast, and with Farres' tubercle of the liver.

In that excellent statistical paper to which I have referred more than once (Sibley and Arnott in 'Med.-Chir. Trans.,' vol. xlii, A.D. 1859), out of 173 post-mortem examinations, recent tubercle was found in eleven cases, and cretaceous in four. Many of these were cases of epithelial disease of lip, tongue, or stomach; but others were undoubted scirrhus or encephaloid and with recent tubercle; so that there can be no reasonable doubt of the coexistence and simultaneous progress of the two.

It is generally recognised as a reasonable thing to believe that cancerous parents tend to propagate tuberculous children. Of this, I suppose, no practical man has any doubt; and if we believe this, it is little addition to our creed that a patient whose general health has been broken down by cancer may develope tubercle in his lungs as a result of the imperfect nutrition which may result from the action of cancerous deposits in internal organs of importance.

of cancer, so cònsonant is it with what we see every day whether in healthy or diseased actions, whether in mental or physical conformation and proclivities. If the outside lines of a man's body resemble his parents', why not the internal organs, and why not equally the component parts of organs and tissues to their minutest subdivisions? If a man's nose be like his father's in outline, shall we deny a resemblance as accurate, if more subtle, in the cells and fibres of which his nose is built up? If a woman can trace back the conformation of a finger nail to her ancestress in the fifth generation, as I have known done, why not the conformation for good or ill of her mammary gland? and as we must believe in a physical cause for physical evil (as well as a moral cause for moral evil), I can see no absurdity in the belief in hereditary taints in the case of cancer.

Nor is this belief in its hereditary tendency at all contradictory to the view which I hold of the general existence of exciting causes of cancer, such as blows and hurts of all kinds. Hundreds receive blows and get no cancers; many have hereditary taints and receive no injuries to call them into activity or to render their influence available for the development of the latent tendency. In all probability both are generally existent, though we cannot always trace them; and no doubt in a few cases either of these alone, if it exist in sufficient intensity, may give rise to the disease. A strong hereditary taint without a blow, or a severe blow without the other, may alike produce a cancer. I have no doubt that much of the inveterate incurability of cancer, and its strong tendency to reproduce itself, depends on its special hereditariness. Consequently, where the disease is clearly shown to have existed in a parent, my prognosis would of necessity be considered as they influence the question of operation. Its situation, size, connections, duration, &c.:

As to its situation, scirrhus of the breast and its neighbourhood is the most frequent, and happily the most easily removeable. Scirrhous tumours of the parotid and axillary regions, next in frequency, from their situation are almost impossible to remove. In the case of the deeper situations of the disease, such as the tonsils, cervical glands, &c., much must depend on the period and amount of growth whether anything can be done in the way of operation. Scirrhus of the glans penis and corpus cavernosum, very rare as compared with epithelial disease of the prepuce, is easy to remove, and I am disposed to think the result is more successful than would be supposed, if the disease is taken away early. To return to the most important, the scirrhus of the mammary gland—it may have its primary seat anywhere in the gland; most commonly it is near the nipple and a little below and outside it; next in frequency is the situation above and to the inner side of the nipple; thirdly, immediately behind the nipple in the centre of the gland. The more common locality is the worst as regards prognosis, owing to the number and closeness of the lymphatic vessels and glands, the readiness with which they become implicated and consequent difficulty of effectual removal. As a general rule, *cæteris paribus*, the nearer the axilla, the worse the prognosis. Where the disease appears above and to the inside of the nipple, it generally arises after a blow, and so far as the local origin can avail, the prognosis is more favorable. Where it lies immediately central it is often complicated with cysts—as bad a combination as can well be. This is readily known, as I have elsewhere laid down, by the exudation of a serous or sero-sanious fluid from the nipple, a symptom

I have seen exudation of a reddish-brown fluid where no cysts were found. Scirrhus of the axillary glands as a primary affection is rare and is a bad form of the disease. Sooner or later, and sooner rather than later, the breast becomes implicated, sometimes in one, more generally in more points than one, in which case it will present even worse features than where it commenced in the breast and spread to the axilla. Yet in the early stages of all these forms operation is not only justifiable, but, as far as locality goes, is advisable. No locality will be sufficient to forbid the removal of the tumour if we have a reasonable chance of thereby removing the disease entirely as regards its local manifestation.

The same conclusion may be drawn as regards the size of a scirrhous tumour. The smaller the better, yet at no time is large size to deter us, if isolation be practicable. As a palliative operation even the removal of large tumours may be proper, to get rid of pain, offensive discharge, overpowering feeling of weight and tension, or for other reasons, apart from all probability of cure.

The connections and complications of scirrhus are much more important and are most difficult to treat of, so various are they and almost individual in their aspect.

The connections with skin, fascia, and lymphatic-gland are the principal to be considered, in addition to the immediate effect of the tumour upon the structure in which it is primarily developed.

There is such intimate connection between these various parts that one can scarcely be implicated for any length of time without the rest suffering with it; thus, in the breast, as soon as the skin is infiltrated, the lymphatics become enlarged and nodulated; the progress of [illegible]hus has be tition to go over the same ground again; suffice it to say that the infiltration goes on through the interlobular areolar-tissue, and so spreads through the gland from one end to the other, condensing the fibrous tissues, compressing the true glandular tissue, and ultimately causing its atrophy and disappearance. Along the fibrous tissues it creeps towards the skin, and along the lymphatics to the axilla—deep beneath the gland also it extends itself into the meshes of the areolar tissue, into the fascia, and then into the intermuscular septa, and along the interspaces which lie between the bundles of muscular fibre; I have traced the nuclei along the fibres, adhering to the myolemma on its outside, at regular intervals, and accumulating until they had destroyed the fibre and taken its place.

Plainly, then, it is a question of degree. If the spread of the cancerous infiltration has gone beyond what can be completely removed, our operation can be only palliative; if the disease is limited to the gland, and if on handling the tumour we find it free from any close adhesions to the skin, fascia, or lymphatics, the case is favorable, and our prognosis may be tolerably cheering. This is the form which occurs most frequently in thin persons, otherwise healthy; the breast in such persons is generally pendulous and the gland small; the tumour drops by its weight, and rolls about with much apparent freedom under the skin, resembling in feel, as the late Sir Philip Crampton used to say, "a potato in a bag." If, on the other hand, the skin is much implicated, and looks coarse and greasy—if it feel hard and brawny, or is dotted with tubercles—if the nipple is much retracted and the skin adherent to the tumour—we probably shall find some glandular poisoning; and if so, our prognosis will be worse than loosen its attachments, the knife will be productive of more harm than good. In no such case can we promise more (under the most favorable view) than some prolongation of life, and this only by the use of the most judicious treatment before and after operation.

In other situations than the breast scirrhus is most unmanageable as regards its connections. In the parotid region, whether its primary seat be the parotid gland itself, or, what is more probable, a lymphatic gland imbedded in its substance, the ramifications of the morbid growth are so varied and extensive that it can never be removed with any degree of certainty. Most of the parotid tumours which are permanently relieved by operation are of a semi-cartilaginous structure. Where the upper part of the chain of cervical glands is affected, matters are no better; and when, as is usual, this articular locality is affected in the old, the more chronic form of scirrhus quickly merges into the acute or encephaloid, and the case becomes perfectly hopeless.

In the penis scirrhus attacks the body of the organ, and spares the prepuce at first, while epithelioma attacks the prepuce, and only as a secondary result implicates the glans and corpora cavernosa, by which time it infects the glands in the groin. I believe that, of the two, genuine scirrhus of the glans is less fatal than epithelioma of the prepuce, but statistics on this point are wanting, few writers making any distinction between the two. This much, however, is certain, that nothing can be worse than epithelial disease of the penis, once it passes into the third or infiltrating stage; and as its progress is rapid from the condition of a simple hypertrophy or wart to that of a hypertrophic ulcer with infiltration, and as scirrhus is slow in pointed out in order to our obtaining in time more accurate statistics.

Upon the mode of operating for cancer of the breast I have few remarks to make. The particular lines of incision suitable to each case will be readily perceived by a judicious surgeon. In scirrhus much more skin must be taken than in encephaloid. In such cases of the latter as that of Judith Garland, figured in Plate II, the less there is removed the better. When the nipple is protruded, it is a sure sign of healthy skin. Still, I have generally seen too much removed rather than too little in scirrhus. I do not speak of the deeper parts, which are often too scantily taken away, but of the healthy integument. In cases of lardaceous scirrhus free incision is needed, yet not extravagant in dimensions. By pinching up the skin, and by grasping the tumour and drawing it away, we can form an accurate judgment upon the superficial and deep adhesions; and we shall generally find, even in the worst cases, that the circumference, and a good deal more, of the gland is free from them, so that we may save a good deal of the circumferential skin. The general rule as to the form of incision has been to tail it off towards the axilla, and slightly in the opposite direction, so as to be able to bring it neatly together. In very large breasts, requiring the removal of much skin, a perfectly circular incision will generally be the best. Circular incisions come together in a straight line, and the direction of the line of union is left optional until after the removal of the tumour. I have often found the advantage of this, and I do not now think it necessary to make an elliptic incision, although sometimes, no doubt, it is the best. As a rule, we should save sound skin, and we can do this best by a circular or slightly oval incision I am inclined to think I have seen mischief produced by the injuraxilla has produced. All the gland should be removed; any fragment left behind will be a nidus for fresh mischief. The case of Mrs. P. L—, given below, and those like it, are not exceptions, because in them scirrhus begins outside the gland, and may not spread to it at all, or, if so, only to the nearest lobule. Once, however, it gets a footing in the gland, it will soon ramify through it, so that it is only in the earliest day of its invasion that any distinction can be drawn in favour of the class of cases alluded to.

When the tumour is removed and the vessels are tied, I generally bring the edges together by five or six interrupted sutures of silver wire or fine thread. Bringing the wound into line, I place thick compresses of cotton wadding parallel with and about an inch from it, and then bandage the chest as firmly as the patient is likely to bear. In this way I never have consecutive hæmorrhage or lodgments of blood in the cavity from which the tumour has been removed, and in some cases I get a large portion of the wound to unite by first intention. I do not disturb these dressings for two or, if possible, three days; if they are too tight, I relieve them by cutting them carefully, so as to be able to repin them with the requisite degree of tightness. These directions may be trifling, but it is on trifles after operation that the comfort of our patients, and perhaps their recovery or death, depends; and no amount of care in the early dressings and management is lost.

Should there be any fetor (in the summer time) before the third or fourth day, the permanganate-of-potash lotion is the nicest deodorant; it has no smell itself, thus possessing a great advantage over the chlorides, and its beautiful colour makes it a favorite. As soon as suppuration begins we must look sharp to have ample room for it to get out. This we happen that the whole line of wound has closed by first intention. Upon the daily dressings I need not dilate, nor upon the possible appearances and changes of the wound.

As regards the immediate results of operation, about 5 per cent. die of phlebitis, erysipelas, or other accidents. This is considerably under the mark of ordinary mortality after other operations of equal severity. With regard to the effect of erysipelas, a strange notion has existed in the minds of several independent observers. In calling it strange, I do not mean to imply that there may not be grounds for it, especially as it tallies with an old notion of the value of abundant suppuration after operations for cancer. It is that erysipelas is antagonistic to cancer; when a patient recovers from a severe attack of erysipelas after removal of the cancerous part, she is more safe from relapse. The late Mr. Smyly was strongly impressed with coincidences of this kind which he had observed, not alone in his own practice, but in that of his uncle and other surgeons. Mr. Tanner, also, author of a pamphlet on 'Cancer of the Female Sexual Organs,' gives expression to a similar notion. Theoretically, I see no ground to expect such a result, unless we can imagine habits to be engendered in the germinal nuclei of the part, whereby they cease to produce the abnormally large cancer-cell, after for a time producing cells of more normal form; but this seems to me the refinement of theory; and although, if what Mr. Tanner and others have remarked be a fact, and not a coincidence, it must have a physical cause, yet I think we had best ascertain it to be a fact, by more extended observations, before we begin to theorise on its cause.

I give the following as an authentic instance of the coincidence of erysipelas and subsequent immunity from relapse. It occurred in Mr. Smyly's practice. I saw the c

Scirrhus of the breast; amputation; erysipelas and phlebitis; recovery, and immunity for three years at least.—Miss T—, aged forty-two. Four months ago she perceived a tumour in her left breast after having strained her arm. The tumour is the size of an orange, and is very painful on pressure. Leeching and mercurial plasters have produced no beneficial effect. In consultation, amputation of the breast was advised. This operation was performed November 17th, 1854. The diseased structure, on examination with the microscope, exhibited well-marked scirrhus—a bad form of cancer, one likely to return.

23rd.—Erysipelas set in.

27th.—Erysipelas has spread all over her chest.

December 6th.—Phlebitic inflammation of the left eye, attended with great pain and intolerance of light, came on, and for some days she was in imminent danger. After this she was brought to Kingstown for change of air, where she recovered, but lost the sight of the eye.

September, 1857.—Some of the glands of the neck are enlarged, but there is no return of the disease in her breast.

I can give no reason why this form of inflammation should exercise any influence over a cancerous diathesis. *A priori*, I should have expected it to be hurtful, by reason of the excitement of the lymphatic system which it produces. Yet I have seen many cases, both of cancer and epithelioma, in which, to the best of my judgment, there was direct benefit conferred by the attack of erysipelas. Infiltrations of suspicious character disappeared, hardness and swelling of glands subsided, and wounds healed subsequently with rapidity. Immunity, in some instances permanent, in others for considerable periods, seemed amply to reward the patient for any slight increase of risk. I have seen death result from old and feeble persons were its subjects, yet I have had patients close upon eighty years of age who have weathered it. For my own part, I have no dread of erysipelas after operations for either cancer or epithelial disease.

I have omitted, until after the consideration of operation, any remarks upon the tubercular form of scirrhus, inasmuch as we find it generally consecutive upon operation. It is, unfortunately, too common to observe the appearance of one or more tubercles in the skin round the cicatrix, at periods varying from six to eighteen months after the wound has healed. They are also found in the cicatrix itself; in this case, however, they are more flattened and diffused than where the tissue in which they are deposited is more healthy and more lax. Where there are only one or two, or where a patch in the cicatrix can be readily excised, it is as well to do so, only as a palliative operation. Velpeau states that he has operated as often as seven times in one case, keeping his patient alive, and not much worse after ten years. There is reason to believe that successive operations are better borne on each occasion. Much of this is due to moral causes. Patients have a morbid and extravagant dread of the knife, even with chloroform, on the first occasion; subsequently, finding it not so severe, they lose this dread, and suffer less from depression and reaction. Besides, these secondary and later operations are for the removal of much smaller tumours, and the wounds are consequently of less severity.

Tubercular scirrhus is sometimes a primary form. I have lately had a well-marked case of it, in a person aged thirty-five, which presents many points of interest, both pathologically and as an example of how much may be done in unpromising cases, both to bring parts into a fit state for operation and to keep secondary development of the di

Mrs. P. L—, aged thirty-five, tall, handsome, with fresh complexion, with no hereditary taint traceable, a member of a very healthy family, and having herself always enjoyed good health, but of a delicate and susceptible glandular system, the mother of five or six healthy children, who came in quick succession, and whom she nursed generally two or three months too long, confined of her youngest child three years ago, states that, about the time of the last child's birth, one of the children gave her a severe blow of a stick in the right breast, a few inches above the nipple. She suffered great pain at the time, as also on several other occasions, when her child struck her with its head or little fist in the spot. She did not observe any tumour or discoloration until thirteen months ago, when a little loose, rolling grain, the size of a pellet, was felt four inches above the nipple, and rather to the inner side of a line drawn vertically upwards from that point. It was beyond the limit of the gland; but the nearest point of the gland, one and a half inch distant, had been the seat of a small superficial abscess during one of her nursings. There was no pain in the tumour unless when struck. She did not show it to any medical man until December, 1863. It was then the size of a florin, adherent to the skin, with a central nipple-like projection, blue and thinly covered, sticking up half an inch or more. There was a slight irritation of one gland in the armpit. The skin over the non-projecting part of the tumour was somewhat coarse in texture. Downwards and outwards towards the nipple, but stopping short of it by an inch, ran a thick fibrous band or root, three fourths of an inch wide, and tapering to a blunt point of one fourth of an inch at its lower end. The skin over this portion was non-adherent. Nothing was done until I saw her on the 21st of December. In the interval the finger in size, covered with integument stretched almost to bursting. Other symptoms were as before, but much pain of a sharp kind was felt, though I cannot say complained of. I applied ice, coarsely pounded, in a bladder, for a few minutes at a time, during periods gradually extended from half an hour to two hours, and repeated three times in the day. The sound parts were protected by a roll of soft cotton wadding while the ice was on, and a large soft plaster of soap and opium spread on chamois leather was applied in the intervals. The pain immediately vanished on each occasion that the ice was used, and gradually disappeared entirely, even in the intervals. In three days the prominent part of the tumour was reduced to the level of the rest, and its livid colour disappeared; the skin remained red, and the rest of the tumour was as yet unimpressed by the ice. The gland in the axilla fell at once to half the size it had been when first I felt it. Through over-zeal on the part of her attendant, and in disobedience of orders, pounded ice and salt, which I had used cautiously for a few minutes at a time, was left on too long, and the centre of the tumour was slightly frozen. A blister rose on the surface the size of a silver threepenny-piece, the gland in the axilla rose again to its former size, and some little irritation appeared above the clavicle. With care and the use of opiate plaster and moderate icing, all subsided, and the lost way was regained. I gave during most of the first week five-grain doses of saccharated carbonate of iron, with the same quantity of bicarbonate of soda, in a wineglass of water, three times a day. On the eighth day of icing the tumour became hot and red (from over-icing again). I applied three leeches, a stupe-cloth for an hour, then tepid water, then cool water, then iced water, and finally ice again next day. This improved matters so much

Some fresh irritation, and a little spot of ulceration at one of the leech-bites, rewarded my over-diligence. I again applied the soap plaster and opium, with ice over it, constantly, and on the 7th of January I had all as well as I could expect, and better than at any previous period since she came into my hands. I now thought I saw my way clearly to remove the tumour, in spite of axillary and possibly supra-clavicular complication. There was no doubt that if left alone, or treated only by ice and opium, it would get worse by rapid stages, even if under constant supervision. She would not see any other Dublin surgeon, and went to London, where Mr. Paget, Mr. Fergusson, Mr. Pollock, and Mr. Hawkins, saw her, and, with slight variations, approved of the removal of the disease. Some counselled removal of the axillary gland; others, with whom I agreed, preferred to let it alone, the partial operation giving the best chance of prolonging life.

Accordingly, I removed it on the 15th of January, with the assistance of Dr. Jameson and my colleagues Mr. Porter and Mr. P. C. Smyly. The incision only comprised the tubercle and the root, which ran down into the portion of mammary gland, the previous seat of abscess. I cut about an inch wide of the tubercle, but saved the skin as I came down towards the breast.

There was a good deal of burning pain for two hours after she recovered from the chloroform, and for two days a good deal of discomfort from pain in the back and the reaction after all the excitement she had gone through.

The wound suppurated freely, cleaned out in a fortnight, and was completely skinned over within six weeks. The only occurrence during convalescence that need be noted was, that on three occasions the glands of the neck up to the very back of the head

She went out freely from about the tenth day, and was in every other respect remarkably well and very cheerful, although conscious that the operation was only palliative. Each time that the glands enlarged the supra-clavicular and axillary became especially angry, and after the others subsided they remained more enlarged than before. Although they became less, they never fell quite to the size they had been before operation.

The daily application of a tincture of bromine (ʒss to ℥j Sp. Vini) gave great relief to the pain in these glands. The severe smart produced by the bromine was found to annihilate the deeper and more constant ache of the glands. Leeches were occasionally applied, as the glands got excited, and always with benefit. Angry or painful spots about the cicatrix subsided under the opium plaster, and I have good reason to hope that the disease will be kept at bay for a long time. From her aspect, I incline to believe that her lungs will ultimately become affected, and that death, when it does occur, will come in a less horrible aspect than if the disease had been left to run its course of rapid local destruction, unchecked by the knife of the surgeon. Much benefit has been derived in this case from repeated courses of iron, alternated with bromide of potassium, either alone or combined with cod-liver oil. I have also given her bromine, in doses of one sixth of a drop with extract of conium and carbonate of iron, in pill, twice or thrice a day, and I think with decided benefit.

While the secondary, or rather consecutive, deposits of cancer in the skin are generally tubercular in their form, the more distant infiltrations, whether of glandular or areolar tissues, are, for the most part, more akin to encephaloid. The principal gland of the part affected becomes first simply on section you can trace with the naked eye the cancerous infiltration running parallel with the proper gland-tissue. Soon the gland loses its kidney shape, and bulges out irregularly in one direction or other. As soon as this change in form takes place there is no longer room to doubt that cancerous infiltration has occurred, no matter how small the gland may be. Once set up there, glandular infiltrations go on rapidly, and in proportion to their rapidity is their softness or encephaloid nature evident. Should the gland be so placed that it cannot be removed along with the primary growth, there is often a check for a time in its enlargement for some months after the operation. Sometimes, however, the opposite result obtains, and the irritation of the surgeon's wound causes it to grow rapidly. The former and better result is, however, much the commoner.

As a rule, the glands in the axilla are best let alone, even when the breast is removed. Incisions into the axilla will, no doubt, enable us to get away most or all the glands in it, if ever so little enlarged; but the result of such practice is generally the development of lardaceous cancer of the arm and side, and sometimes the spread of the disease to the cervical glands. These are painful complications, much more so than the pleuritic or pulmonic infiltrations that would otherwise be the commonest modes of termination to these cases. I believe also that interference with the axilla, unless to remove a single gland of large size, the rest being apparently healthy, is likely to hasten the death of the patient. It must be manifest that cases of isolated enlargement of a gland in this situation must be extremely rare. The type of disease, too, in such instances will be encephaloid.

On the average duration of life of women suffering from cancer of the breast.—Mr Paget was at one time of on an average, by fifteen months, if operation were not resorted to. After a more extended experience, he changed this view, and he now states that those who are not operated on live, on the average, four months less than those who are. His statistics are as follows:

In 75 cases, not operated on, the average duration of life, from the first stage of the disease, was forty-eight months; in 64 who survived the operation, it was a little more than fifty-two months. The longest lifetime enjoyed by one of the first class was 216 months, the shortest seven months; the longest of the latter class was 146, the shortest seven and a half months.

	Of 100 operated upon.	Of 100 not operated upon.
Died in the 1st year	4·7	8·0
„ 2nd „	6·25	22·6
„ 3rd „	21·8	24·0
„ 4th „	14·0	9·37
„ 5th „	20·0	7·3
„ 6th „	11·0	5·3
„ 7th „	9·37	9·37
„ 8th „	3·12	2·66
During the following years	9·37	12·0

Mr. Sibley, in his statistics drawn from the records of the Middlesex Hospital,* states that, "in the cases of cancer of the breast, those who had been operated on lived fifty-three months, whilst those in whom the disease was allowed to take its natural course lived only thirty-two months." It will be observed that there is a wider difference in these averages than in Mr. Paget's.

These statistics represent tolerably closely the state of the question [illegible] regards cancer in other organs and lo

Those who wish full information on this subject will find it in a comparison of Mr. Sibley's tables, and those drawn up by Mr. W. M. Baker from 500 cases in Mr. Paget's practice. The one paper is in the 'Med.-Chir. Trans.,' vol. xlii; the other in vol. xlv of the same work. Mr. Baker deduces some important points as regards operation, a few of which I take the liberty of transcribing.

"The average length of life for all cases of scirrhous cancer is—

Primary disease not removed . .	43·0 months.
Primary disease removed . . .	55·6 ,,

"Medullary cancer—

Primary disease not removed . .	20·0 ,,
Primary disease removed . . .	44·6 ,,

"The average date of recurrence in each kind of cancer is—

Scirrhous cancer	13·9 months.
Medullary cancer	7·4 ,,

"The age of patients seems to have but little influence in determining the length of life, except by its connection with the kind of cancer."

The cases I have followed to their conclusion are too few to found statistical tables upon. It is the exception rather than the rule to hear of hospital cases once they leave. The shortest period in which I have known the disease to return and prove fatal after operation was fourteen months; while, in one instance, I have found my patient alive, and free from return, after eight years; this case was, however, in private practice. In hospital practice I have had one case of immunity after eleven years, under trying complications. The case also goes far to prove that

Anne Malone, aged thirty-three, had her right breast removed for scirrhus in the year 1853. In the beginning of 1864 her right arm was broken, and united well. It was refractured by a fall five months subsequently, when she again came under my observation. I put the limb up carefully in starched bandages, and got it to knit again firmly in less than six weeks.

Had there been any constitutional tendency to cancer, even if it had remained dormant for eleven years after removal of its local manifestation, it would surely have showed itself in the non-union of the fractured bone upon one or other of the above occasions. The bones are peculiarly liable to be the seat of secondary cancer after operations, yet no such development took place here, even under the provocation of repeated violence.

I know of two cases of scirrhus of breast, each of which lasted for twenty-nine years. They were of the atrophic type, and had not been touched by the knife nor irritated in any way. I have also been told of a case in which the breast was removed for what was supposed to be undoubted scirrhus, and the patient survived for twenty-three years, and was then attacked with cancer of the opposite breast, which was operated upon, and proved ultimately fatal. The first operation was performed by Mr. Abraham Colles, the second by Mr. Rynd; the lady in the interval enjoyed excellent health.

Other cases I have seen or known of in which death did not take place for periods of from five to fifteen years after operation—results which, if exceptional and not to be calculated on, are still most cheering, and will encourage the surgeon to give every chance to his patient. Add to this that the patient's general health, as a rule, improves after operathe operation and the recurrence of the disease is one of ease and comfort such as could not be expected were the disease allowed to run its course unchecked, and I think we have abundant reasons to operate in the majority of cases. It is singular how cheerful and sanguine of recovery patients become as soon as they are freed from the actual presence of a cancerous tumour. I have seen this in cases where there was at the same time a full consciousness that the operation was only palliative. The general tendency of those afflicted with cancer is to gloominess and despondency, so long as the primary tumour is in progress, so that the change to an opposite frame of mind after operation is the more remarkable, and may well be taken as an encouragement to the surgeon even in cases which are more than doubtful.

CHAPTER IX.

CANCROID TUMOURS.

THE term cancroid seems to be most suitable to those tumours which, in common with cancer, have an interstitial origin, and which differ from it in possessing a less abnormal character of the constituent cell-elements, and a greater degree of curability.

I do not include epithelioma among the cancroids. My reasons for this are much the same with what I have already advanced against including it among cancers, namely, that it is not originally an infiltrating growth, and although in its later stages it becomes an infiltration, yet even then the line between it and cancer is for the most part broadly drawn. Its mode of origin and growth, its effect upon neighbouring and distant tissues, differ so essentially from both cancer and the cancroids, as to make it necessary to class it apart, unless we solve the difficulty after the method of former generations, by calling them all cancers.

Cancroid tumours are known at present by various names. They comprise the Fibro-plastic tumour of Lébert; the Myeloid of Paget; the Recurrent fibroid of Paget; the Fibro-nucleated of H. Bennett; the Colloid of Laennec; and what I have named the Fibrinous or Hæmorrhagic tumour. The term fibrinous had indeed been applied to wh of growth more nearly allied, as we shall presently see, to the cystic group.

For practical purposes these classes may be reduced to two, with distinct features: the fibro-plastic, and the recurrent or fibroid. The fibrinous and the colloid are varieties of the latter, the myeloid of the former group.

I have named them in the order of relation they bear to cancer, both clinically and in their physical characteristics and intimate structure. They may be described in general terms as tumours more or less globular in outline; of varying degrees of elasticity; slow to poison neighbouring glands; with an almost inveterate tendency to recur, even after free ablation; and presenting, after removal, a dry section with an absence of the creamy juice so characteristic of genuine cancer. They are composed of cell-elements varying in form and size, from the most elementary lymph-cell up to the nearest possible approach to the caudate variety of cancer-cell; each tumour, however, possesses its own type of cell, the form and development of which have a direct ratio to the tendency of the tumour to recur or to poison the system, so much so as to enable a skilful observer to give a very accurate prognosis after a careful microscopic examination.

As may be supposed there is the widest variety in the microscopic characters and clinical history of these tumours. The worst types of fibro-plastic are composed of large cells (Fig. 4, p. 4), very closely resembling cancer-cells, but more distinctly caudate or fibrous. The nuclei are very large in the worst cases, but never quite so large as in genuine cancer. The caudation or fibrous tendency and the regularity of arrangement is greater than in cancer. This class of tumour is closely allied primary tumour does not poison the glands, the secondary one does so with certainty and rapidity.

On the other hand the fibroid tumours are made up of minute cells with small nuclei, and a faint tendency to elongation (Fig. 1, p. 3); these recur frequently, and do not generally poison the glands, even after repeated recurrence and removal.

Colloid tumours, classed as cancers, and named colloid by Laennec, appear to me more closely allied to recurrent tumours of a fibroid nature; they are not common as external tumours. I have only met them twice, or rather in two patients; for in both cases their extreme frequency of recurrence was a striking feature. As is well known they are found frequently in the viscera, and have long been classed as cancers. Colloid has been looked upon as a stage or phase of cancer. One cause of this error has been, no doubt, the presence of small jelly-like dots and specks of grey transparent material in the interstices of many scirrhous tumours. Except to the eye these have nothing in common with colloid; they are groups of cancer-cells identical with the ordinary cell of moderately acute cancer. Now in colloid the constituent cell-element is very different as we shall see, in fact almost as different as is possible.

The fibrinous tumour is an important variety, to which I have drawn attention. It is found in the breasts and testis, associated with cystic disease. I have also met with examples in the popliteal space, in the bursa over the olecranon, in the axilla, and alongside the tibia. Where it is complicated with cysts it destroys the organ or gland in which it has its seat. Elsewhere it is of variable activity and destructiveness according as the hæmorrhage which has given origin to it ceases or is repeated at intervals. In the from encephaloid, and indeed in all cases that I have met, the diagnosis has been by no means easy.

The entire group of cancroid occupies the debateable ground between cancer and the fibrous tumours. Every variety of cell-element, and every degree of destructiveness will be found in it. The classification I have adopted is only an approximate arrangement founded on the more marked specimens that are met. It is sufficient to remark, as far as structure goes, that where the cell-elements are of abnormal shape and size, glandular poisoning is proportionate to this deviation, and that where the vital energy of the cell is expended in the direction of rapid increase, the tendency of the growth to recur locally is proportionately exhibited.

Hence the fibro-plastic tumour, with a large cell, flask-shaped or fusiform, containing large nucleus, resembles genuine cancer both in tendency to recur and to poison the neighbouring glands; while the fibroid, with small cell of rapid reproductive power, tends to recur locally with great obstinacy, but leaves the glands free after many recurrences. In the group will be met infinite combination of these two qualities of cellular structures, with an equal variety in the clinical features and physical characters of the tumours.

CHAPTER X.

FIBRO-PLASTIC TUMOURS (LÉBERT), MYELOID* TUMOURS (PAGET).

This is a large class, including many tumours that are highly malignant in their later stages, though often perfectly amenable to treatment at first. They specially affect muco-fibrous surfaces, such as the gums and Schneiderian membrane; the fibrous periosteum is also a favorite seat for them to spring up in. Mr. Paget has seen them in the mammary gland, where I have also met them. Lébert speaks of the eyelids, conjunctiva, subcutaneous tissue, cerebral membranes, and uterus, as their occasional seats. Velpeau has met them in the thigh and shoulder most frequently, in the breast rarely. I have found some malignant ulcers of the face to present fibro-plastic cells under the microscope; those which extend to the bones, and which have their origin especially on periosteum. Most of the tumours known as malignant epulis, or malignant polypus, belong to this class; also the very remarkable form of chronic ulcer of the eyelids, described by Dr. Arthur Jacob, and known as Jacob's ulcer. These all differ from cancer in one marked anatomical character, and in one equally marked clinical feature. The cells of which they are mainly composed are smaller than cancer-cells, and what is more important and determinate, their nuclei are smaller; secondly, the tumours, though destructive to life, by tendency to grow and extend to neighbouring parts, are slow to poison the lymphatics, or spread through the system generally. In the end they will implicate the lymphatics, but more by a process of continuous extension than by absorption. I have certainly seen one case of remarkable general poisoning of the integument, first of the face, and then of the greater part of the head, neck, and trunk; but such a result is of extreme rarity, and, as a rule, these tumours are much more local in their action than cancers. It is certainly impossible to draw an accurate line between the two; many tumours it will be difficult to classify, occupying as they do the boundary line between the two. Let it be borne continually in mind that there is a gradual ascent from the simple and comparatively innocent tumours which are composed of elements almost undistinguishable from healthy constituents of the body up to the extremely abnormal forms to which we give the name of cancer; it is, therefore, only for the purpose of assisting the memory that we adopt any kind of classification, seeing that for all tumours composed of cells starting from lymph-cells it is more or less artificial. So that we are not to reject a system because it is not rigidly applicable in every case we meet. It is enough if it include within its range a considerable proportion of cases. We have seen that cancer may be met in a condition and at a stage in which it is purely local, or, at any rate, a purely local manifestation, but it is not the less cancer for that; so, fibro-plastic growth may be met at a stage when it shall have advanced beyond the immediate neighbourhood of its origin, and have invaded glands and other parts at a distance; here, though it be a highly malignant disease, it would be unscientific and absurd to insist on calling it cancer, if its other symptoms and its anatomical structure be not those of cancer. To do otherwise, is equivalent to giving the name horribly destructive. I have seen a case in which strumous disease of the testis was followed by deposits of tubercle in the liver, pancreas, and other viscera—deposits which were composed of tubercular elements, and which yet were as truly malignant as cancer, in the sense of their destructive effects. In this case, the diagnosis of some of the tumours by the naked eye was undoubted, and the microscope revealed a similarity of structure in all. No one would have thought of calling any of them cancerous.

---

* Μυελωδής. marrow-like, from the resemblance of their poly-nucleated

The cells of fibro-plastic tumours are large (Pl. I, fig. 2), not so large as encephaloid cancer, but larger than those of any other lymph-tumour except cancer. They are of a long oval; one extremity is generally tailed out into a fibre of some length, about as long as the body of the cell itself. The nucleus is very large, nearly as large as the nucleus of encephaloid cells. It is placed somewhat nearer the larger or blunt end of the cell, never, as far as I have seen, nearer the small or caudate end. This form of cell is happily named flask-shaped, by Mr. Paget. Other forms of fibro-plastic cell are long fibre-cells—that is, cells with both ends spun out into a tail or fibre (Fig. 4, p. 4), the nucleus large and bellying out the middle of the fibre, or sometimes projecting wholly from one side. Mr. Paget figures cells with forked tails. He also gives large polynucleated cells or thin discs, containing from two to ten oval nuclei of transparent clearness, and with nucleoli (Fig. 13, p. 14). I have met with all these in a few instances. The caudate or flask-shaped cell resembles closely, if it be not identical with, a form of cell met with now and then in periosteum which has been the seat of suppurative inflammation. I have frequently found such cells in the fluid on necrosed bone, especially bone from the facial region. This fact, which to my mind simply corroborates the common microscope. People have said, when knowledge on these points was less exact, that no reliance was to be placed on microscopic revelations, because there was no means of distinguishing between two cells similar in form, taken from widely different structure. When they came to understand that form was only one of many attributes, and that grouping, variety, and permanence, were as important in determining the nature of cells, these objections, which arose from prejudice, ignorance, or half knowledge, became estimated at their true worth, and are not now heard from the lips of any who pretend to keep up with the advance of science. If, in one specimen, we find only fusiform or flask-shaped cells, with moderate sized nuclei arranged with regularity, and held together by a delicate hyaline, or slightly granular substance, or by fine fibres of areolar tissue, we can have little doubt in classing it as fibro-plastic. On the other hand, if we meet a few similar cells mixed up with many pus-globules, whole or broken, with organic granules, fragments of red colouring matter and fibrous tissue, blood-corpuscles and vibriones, we can scarcely fall into the error of supposing the few cells to be other than the common deviations from the healthy lymph-cell, such as experience tells us are frequently found in inflamed periosteum. But these discussions have now well nigh died away. Microscopic investigations take the place they ought, as allies to clinical study, and are neither put in the back ground, nor made to supersede the daily observation of disease in the living.

Fibro-plastic tumours present various external appearances. Most of the varieties are explained by the situations of the tumours, the parts from which they spring, and by which they are surrounded. Some, springing from the periosteum of the large bones (tibia, humerus, femur) are in outline, and spherical or flattened according to the compression exercised upon them by the skin on one surface, and bone on the other. Those growing from the outer periosteum of the jaw are globular, firm, and scarcely elastic, growing very like a simple mucous epulis at first, but quickly exceeding it in dimensions, and having always a firmer hold of the bone by a broader basis of attachment. They often spring from the socket of a lost tooth, and expanding, thrust aside the other teeth, displacing the opposite tables of the jaw bone, thinning them as they enlarge, and, finally, causing their absorption to a greater or less extent. When seated in the upper jaw they sometimes spring from the antrum, sometimes they make their way into it from the socket in which they have arisen. At other times they will destroy (by pressure) the bony palate and invade the nose. When they arise from the Schneiderian membrane, they grow like ordinary polypi at first, filling up all the cavity of the side from which they spring, passing back through the posterior nares into the throat, and threatening suffocation.

In some cases where these tumours grow from the deeper bones of the nose, and in the cavity of the antrum, they are composed of a multitude of little mammillated processes or tubercles which raise up the mucous membrane and gradually push it on, until it and they fill the antrum and nose, and expanding the bones, push them out of their way, merely expanding and not infiltrating them. Such was the condition in Mr. Quinlan's case, for which he successfully removed the jaw bone, particulars of which will be given a few pages farther.

In all cases, when the limits of distension are reached, the covering membrane, whether cutaneous or mucous, gives way, an ulcer forms slowly, and, after a time, a fungus protrudes, strength. Strictly speaking, these tumours give rise to no direct constitutional disturbance. As long as they do not produce distress by mechanical pressure, they are a source of no real annoyance to the patient. In the middle period of their career, various symptoms will originate from the pressure they exercise on muscle or periosteum, nerve or blood-vessel, and by the displacement and stretching of these tissues; finally they cause death either rapidly, as, for example, by suffocation, or slowly, by the hectic of exhaustion and pain. They are most frequent in youth, but by no means confined to that period. I have seen them in an old man of sixty as well as in a lad of sixteen. As a rule, their growth is moderately steady, but slow; they are all but painless in themselves, unless when extension is interfered with, and even then it is the restraining bone or periosteum that is chargeable with the pain. They recur with great obstinacy after repeated operations of an extent sufficient to have removed every trace of morbid tissue. In such cases of recurrence *in loco*, the cicatricial tissue of the surgeon's wound is the nidus of new deposit. This imperfectly organised material is prone to take on any variety of morbid action that has been developing in its neighbourhood, even when every trace of the original development has been taken away. In striving to account for recurrence of tumours by supposing that we have removed them imperfectly, we are apt to forget that we of necessity create by operation a tissue more prone to morbid actions, than the natural tissues of the body. But, however we explain the phenomena of recurrence, the fact remains unaltered. The majority of fibro-plastic tumours are eminently recurrent. The secondary tumours differ from the primary in greater rapidity of growth, less hardness, and more semblance of fluctuation: sometimes a lobed characterises the secondary growth, where the primary has been globular or even in outline.

Section of these tumours gives a milk-white surface, like a raw turnip (Napiform cancer of Velpeau) giving out little or no creamy fluid, fleshy or firm to the touch, sometimes tough and fibrous, more frequently fibrillar and brittle. In other cases the tumour, when divided, gives a cut surface "smooth, uniform, compact, shining, succulent, with a yellowish, not creamy fluid; * * * with blotches of dark or livid crimson, or of a brownish or a brighter blood-colour, or of a pale pink, or of all these tints mingled, on the grayish-white or greenish basis colour." (Myeloid tumour of Paget.) I have seen them of a pink and white brain-like appearance; but with more firmness than genuine encephaloid.

Many years ago I assisted Sir Philip Cramptom in the removal of an epulis from a young man. It grew from the gum in a space left by the loss of one of the upper bicuspid teeth. It was soft, pulpy, and globular, covered with a smooth mucus membrane, which was much stretched and so thin as to be discoloured by the vessels of the underlying tumour. The growth was as large as a Spanish nut with a broad attachment to the gum and bone; it had begun to separate the adjacent teeth and to loosen them in their sockets. I cannot remember if it had ever bled, but I rather think if there had been any point of excoriation or fungus from which blood could have issued I should have recollected it. There was no pain worth mentioning; any that he complained of was referable to the pressure on neighbouring teeth. There were no enlarged glands near it, nor was there any cachexia. Sir Philip removed the tumour only, not interfering with the bone; he simply shaved it off level with the gum and cauterized the base with the hot iron; it was much more on its surface; in fact it was here so firm as to require some force to cut it. It was not bony, nor cartilaginous; rather tough, elastic, and resisting, like a piece of india-rubber. Sir Philip used in this case a knife of which he was very fond, a common pruning-knife, with a couple of pieces of steel attached to the sides of the blade so as to form a rest for the ball of the thumb, leaving only an inch or so of the cutting edge free for use. Great force can be exerted with such a knife, using it as a gardener does a pruning knife; the thumb of the operator is protected from injury by the two pieces of steel, which project beyond the cutting edge except for an inch or so next the point. With this knife Sir Philip removed the epulis. There was some free bleeding which he controlled by the actual cautery. He gave me the tumour to examine. I was then but a beginner with the microscope, and finding large cells which were not epithelial, and which resembled cancer-cells more than any others I was acquainted with, I thought it must be cancer, and expected it to return immediately. This expectation, fortunately for the man, was not realised. The wound healed rapidly, and the morbid growth had not reappeared when I heard of him several years after the operation.

Another case came under observation resembling the above in many particulars but in the results unfortunately differing from it.

The patient was an elderly man, admitted into the Meath Hospital in December 1852. He had an epulis springing from the socket of a tooth, as well as I remember an upper bicuspid or first molar on the left side. It was globular and had expanded the alveolar process, and softened it. I have no record of how long it had existed before admission; the man seemed healthy for his years.

Mr. Smyly, in whose charge the patient was, removed the growth as far as possible without removal of any of the maxillary bone. The actual cautery was applied to the base of the tumour after its removal, and the wound in due time closed up. However, in about eight months the man returned with a much larger tumour in the site of the former one, and with evident signs of extension of the disease upwards beneath the eye, and forwards into the integuments of the face; upon the cheek over the antrum there was an irregular globular growth attached to the bone, and to the skin, and extending outwards towards the malar bone, to the periosteum of which it had already formed adhesions; the surface was of a dusky red, hard to the touch, smooth, not granulated or coarse as in cancer. The impression conveyed to the eye and hand was that the morbid growth specially belonged to the periosteum, and that its implication of other parts was secondary. The disease had progressed too far for further interference and the patient left the hospital.

The cellular elements of the primary tumour were of the fibro-plastic order.

Mr. Quinlan, of St. Vincent's Hospital, has published in the 'Dublin Hospital Gazette' for July 1, 1859, details of a case in which he removed the superior maxilla for a fibro-plastic growth. I was present at the operation, and made an examination of the tumour before its removal. After the operation I made a careful microscopic examination of its structure, which was peculiarly arranged, and struck me forcibly at the time as closely allied to cancerous growths, though differing in some important points. The following details are abridged from Mr. Quinlan's published record of the case:

Michael Henry, æt. 43, a healthy-looking countryman molar on the right side loosened by degrees, and fell out. The other molars, bicuspids, and canine, on same side, decayed, leaving their roots in the gums. The jaw at the same time became gradually enlarged and painful. The extraction of the stumps was not attended with benefit. The jaw gradually enlarged; the portion of alveolar process, corresponding to the affected teeth, decayed away, leaving a ragged aperture into the antrum, through which a sanious discharge soon began to flow. On examination the disease was found to have extended posteriorly and internally; reaching in the former direction as far as the pterygoid plate, and in the latter to the mesial line. It did not interfere with the nasal cavity. As it had not extended much anteriorly or posteriorly there was little deformity of the face. It had grown downwards to such a degree that when the mouth was closed the molar and bicuspid teeth of the lower jaw were received into the opening in the antrum mentioned above; a circumstance which caused the disease to assume an appearance of greater breadth than it otherwise would have done. On the finger being introduced into the antrum, its sides were found lined with a papillary growth. The antral surface of the orbital plate was covered with this growth, but did not give the sensation of being itself diseased. The movements of the eye were not interfered with. Mr. Quinlan decided on removal of the superior maxilla as the only means of checking the extension of the disease. This was accordingly done by him on March 11, 1859, in an able manner. I shall not go into the details of the operation, which was done after the method of Dieffenbach, by incisions, one running from the internal canthus of the eye along the nose, and down through the centre of the lip; the second inferior margin of the orbit, the flap being dissected outwards, leaving most of the vessels and nerves intact. The bone was removed piecemeal—the greater portion at first; the remainder, which was softened, expanded, and weakened by the diseased growth, was afterwards extracted. Much troublesome hæmorrhage ensued, and required the actual cautery to restrain it. The cavity was filled with balls of lint soaked in solution of perchloride of iron; to the combination of this dressing, and the use of the actual cautery, may be attributed the rapid recovery of the patient, and his subsequent immunity from recurrence of the growth. I examined the tumour on removal; it presented a singular appearance, in some respects I believe it to be unique. The bone was expanded, much altered in shape, somewhat thinned, oily, and brittle; the mucous membrane covering it, towards the nose and the mouth were, apparently, perfectly healthy. The lining membrane of the antrum was greatly thickened, and completely altered in structure; it was papillated, or rather mammillated; covered over with coarse, rough, raised granular masses of a livid red, easily broken up by the finger, but brittle rather than pulpy or soft. The disease appeared to have been limited to the cavity of the antrum, and to have originated in its lining membrane. The alterations in the bones were the results of pressure and interference with their proper nutrition. Some portions, such as the orbital plate, were quite healthy, although thinner than natural. Under the microscope the growth seemed composed of oval and caudate cells and fibres, with large nuclei; they presented, in fact, the appearance and reaction of the fibro-plastic growths. From the difficulty of entirely removing it, I had some fear that it would return. The actual cautery, however, is a great safeguard against relapse, and coupled with bable limitation of the disease to the antrum, it succeeded in the present instance. The morbid growth in this case did not fill up the enlarged cavity of the antrum; it seemed to cause an eccentric expansion of the bone, and to follow the bone without accumulating in the cavity of the antrum. The loss of the teeth was clearly due to this expansion of the bone acting in the downward direction. Mr. Quinlan informs me that the man is quite healthy at the present date, and free from any return of the disease, either in the neighbourhood or in distant parts.

Mr. Porter, the present senior surgeon of the Meath Hospital, has, during the session, removed a portion of the lower jaw for the particular form of this disease, named by Mr. Paget myeloid. He has kindly furnished me with a few details of the case, which I have great pleasure in inserting.

Jan. 18, 1864, Catherine Byrne, æt. 16.—Disease of lower jaw bone. Expansion of a portion of inferior maxilla to the size of a small egg, filled with fibro-plastic matter. The growth was situated about the junction of the anterior and middle third of the horizontal ramus of the jaw. The bone was thin and expanded, especially towards the inner aspect. The fibro-plastic growth had sprung from the internal periosteum, was of a firm, gelatinous appearance and feel, and when torn, resembled granulation; there was no "succus" in it. The disease had existed more than two years, but its chief increase in size had been within the last month or two.

An incision was made through the lip (not dividing its free margin), in a perpendicular direction to the chin. Another from the lower extremity of this, to about an inch from the angle of the jaw; the diseased portion removed by chain saw; external periosteum saved as much as possible; edges of wound brought together by twisted suture. This

Fibro-plastic disease often commences as an infiltration in the substance of the skin. A small, hard, red tubercle, is then the first sign of the disease, not to be distinguished in this state from a cancerous tubercle, except by its painlessness and slow growth. It does not acquire a large size, ulcerating slowly, and extending as an ulcer, with singularly hard base and edges. It is as if the tubercle extended laterally, and ulcerated in its centre as it extended. I have seen these ulcers in many situations, about the face, over the malar bone, near the alæ of the nose, and about the back of the ear. Above all, their favorite site is the region of the eyelids, where they are best known under the name of Jacob's ulcer. Of late years this disease, well known in Ireland since the year 1827, when Dr. Jacob published his original description in the Dublin Hospital 'Reports,' has attracted some attention in England. Much confusion has, however, been caused by the mistake which is frequently made of confounding it with ordinary epithelial ulceration—to which it bears only a superficial resemblance. It will be well to quote here some extracts from Dr. Jacob's paper, premising, that after making several microscopic examinations of the edges of these ulcers, I have always found them composed of a fibro-plastic material.

Dr. Jacob's paper is entitled "Observations respecting an Ulcer of peculiar character, which attacks the Eyelids and other parts of the Face." It is printed in the fourth volume of the Dublin Hospital 'Reports,' p. 232. After some preliminary remarks, he goes on to describe a destructive ulceration of peculiar character, which he had "observed to attack and destroy the eyelids, and extend to the eyeball, orbit, and face. The characteristic features of this disease are,—the extraordinary slowness of its progress, the peculiar condition of derable suffering produced by it, its incurable nature, except by extirpation, and its not contaminating the neighbouring lymphatic glands. The slowness with which this disease proceeds is very remarkable; of three cases which have come under my observation—one that which is represented in the annexed engraving—had existed for four years, and now presents no remarkable difference when compared with the drawing, which was executed six months ago; the eyeball, exposed and dissected out as it has been by the ulceration, remains precisely in the same state, and the edges occupy the same situation as at that period. In another case, now also under my observation, the patient, an unmarried woman, aged fifty-five, states that the disease has existed twenty-three years without having ever healed; her eyeball also has been exposed by the ulceration for nearly a year, and has not yet been totally destroyed. In the third case, that of a gentleman about sixty years of age, the disease existed for about nine years previous to his death, which took place from a different cause. The sufferings of persons labouring under this disease do not appear to be very acute; there is no lancinating pain, and the principal distress appears to arise from the exposure, by ulceration, of nerves, or other highly sensitive parts. In the examples which I have met, the disease at the worst period did not incapacitate the patients from following their usual occupations; the gentleman to whom I have alluded was cheerful, and enjoyed the comforts of social life after the disease had made deplorable ravages. In two of these three cases I have been unable to ascertain with certainty the nature of the disease at its commencement; whether the ulceration was preceded by tubercle, encysted tumour, or wart. The account given by the patient, from whom the drawing has been made, a poor menced on the temple at a short distance from the external angle of the eye. The other woman, whose disease has existed for twenty-three years, says that it was preceded by 'a kernel under the skin over the eyebrow, which was not rough like a wart, and which existed for two or three years before it came to a head, when she picked it, after which it never healed.' I quote her own words: it was, probably an encysted tumour. [Or, possibly, a tubercle, such as I have seen giving origin to this form of ulceration, M. H. C.] In the gentleman's case the disease commenced in an old cicatrix, the consequence of confluent smallpox; it was at the inner angle of the eye, and constantly moistened by the tears, which could not escape into the nose, the puncta being closed.

"This disease may be observed under two very different conditions, either in a state of ulceration, or in a fixed state, in which no progress is made towards healing. In this latter condition the parts present the following appearances:—the edges are elevated, smooth, and glossy, with a serpentine outline; and are occasionally formed into a range of small tubercles or elevations; the skin in the vicinity is not thickened or discoloured. The part within the edge is, in some places, a perfectly smooth, vascular, secreting surface, having veins of considerable size ramifying over it; which veins occasionally give way, causing slight hæmorrhage; in other parts the surface appears covered by florid, healthy-looking granulations, firm in texture, and remaining unchanged in size and form for a great length of time. The surface sometimes even heals over in patches, which are hard, smooth, and marked with the venous ramifications to which I have alluded. This healing may take place on any part of the surface, whatever may be the original structure: in the case.

denuded as it is by ulceration, is partially cicatrized over. When the ulceration commences it proceeds slowly, cutting away all parts, indiscriminately, which may be in the direction in which it spreads; the surface, in this state, is not so florid, and presents none of the glistening granulated appearance above noticed; the pain is generally greater at this period. It appears also that there is a tendency to reparation, exclusive of the cicatrization which I have mentioned; there is a deposition of new material; a filling up in certain places, which gives a uniformity to the surface, which should otherwise be very irregular, from the nature of the parts destroyed. When the disease extends to the bones, they sometimes exfoliate in small scales, but more generally they are destroyed, as the soft parts, by an ulcerative process. The discharge from the surface is not of the description called by surgeons unhealthy or sanious, but yellow, and of proper consistence; neither is there more fetor than from the healthiest sore, if the parts be kept perfectly clean, and be dressed frequently. There is no fungous growth, nor, indeed, any elevation, except at the edges, as already noticed, and even this is sometimes very considerable. There is no considerable bleeding from the surface, and when it does occur, it arises from the superficial veins giving way, and not from sloughing or ulceration opening vessels. Sometimes the surface assumes a dark gangrenous appearance, which I have found to arise from effusion of blood beneath. I have not observed that the lymphatic glands were in the slightest degree contaminated, the disease being altogether extended by ulceration from the point from whence it commences.

" After the preceding description, it is scarcely necessary to state additional arguments to prove that the disease is peculiar in its nature, and not to be

From the former it is distinguished by the absence of lancinating pain, fungous growth, fœtor, slough, hæmorrhage, or contamination of the lymphatics; from the latter by the absence of the furfuraceous scabs and inflamed margins, as well as by the general appearance of the ulcer, its progress, and history. It is equally distinct from the ulcer with cauliflower-like fungous growth, which occasionally attacks old cicatrices."

After detailing various remedies, local and general, which he had tried in vain for the cure of these ulcers, Dr. Jacob comes to the conclusion that it can only be eradicated by the knife, or by powerful escharotics.

I have quoted, at full length, the description of Jacob's ulcer, in order to contrast it with the much more common epithelial ulcer, which, with rugged hypertrophied edges, irregular outline, rapid advance, uneven floor, and fetid discharges, presented characteristics, such as should have sufficed to distinguish it from an ulcer the very type of chronicity and feebleness of action. The microscope reveals its character, and enables us to assign it its proper place in the fibro-plastic group. We can scarcely claim for it the name of a tumour in any stage, but I have felt that the description of fibro-plastic actions would be incomplete if it were omitted. Little, if anything, can be added to the admirable description given of it nearly forty years ago, by the present venerable President of the Royal College of Surgeons in Ireland. He has clearly distinguished it alike from cancer, lupus, and epithelioma, with all of which there seems a continual tendency to confound it.

In one of his conclusions I specially agree, namely, that all external applications seem hurtful. I have tried many, cicatrization and slow progress go. I have several times cut them freely out, but hitherto without success; the wounds have healed for a time, but, in a few months, fresh spots of ulceration have appeared in the cicatrix and have slowly extended. Still, if the ulcer is large, I have found that its removal is beneficial; for there is, in the first place, a considerable interval between the cicatrization of the surgeon's wound, and the re-appearance of ulceration; and secondly, there is the same slow progress in the spread of the new ulcer as characterised the old. Again, in small ulcers of this type, I should always be disposed to give the patient the chance of its free removal. The obstacle I have generally encountered in effecting this, lies in the extension of the disease to periosteum. The brim of the orbit, the malar, or the maxillary bone, or the mastoid process, have always lain (one or other) beneath ulcers, which I have removed, or seen removed by the knife, and in every case it seemed impossible to get away the deep ramifications of the disease from the fibrous membrane which intervened. This is the key to the want of success which seems almost universal in these cases. A combination of cutting operations and cauterization, with perchloride of iron or potassa cum calce, seems the most promising proceeding in such cases as we may select for an effort at removal of the disease.

In a case of Jacob's ulcer, under Mr. Henry Thompson, a paste which I have used in epithelioma of the leg, was applied with at least temporary benefit. In this case the tumour was so close to the eye that the knife could not be used. A strong escharotic paste, composed of strong sulphuric acid and dry sulphate of zinc in powder, was employed. The first application of the paste was on the 13th made about the 3rd or 4th of September. In order carefully to limit the action of the caustic, which formed a paste of the consistence and appearance of mortar, the parts around were first covered with a thick layer of stiff cerate. In this manner the edges of the eyelids were protected. Incisions were made on two occasions into the eschar, to admit of the introduction of the paste beneath it. The pain at first was inconsiderable, but it became more severe after the incisions. Of the permanent benefit little could be said, as this treatment had only concluded a month before the account was indited.

CHAPTER XI.

RECURRENT FIBROID AND FIBRO-NUCLEATED TUMOURS.

THE recurrent fibroid tumours (Paget) and fibro-nucleated (H. Bennett) are closely allied, both in structure and clinical aspect. I do not in fact see any benefit in distinguishing them as separate classes. Both are composed of elementary cells arrested in the course of development, varying in size in different specimens; but always dwarfed as compared with granulation-cells or fibres. Elongated, caudate, oat-shaped cells with small nuclei interspersed with free nuclei and young cells, and arranged in an irregularly fibrous manner, form the elements of some tumours; these tumours are firm, fleshy, and dry, they tear with an imperfectly fibrous grain; when scraped, they yield no milky juice, they are tough to break up for the purpose of minute inspection; in outline such tumours are either globular, where they can grow freely, or if restrained in one direction by fascia or bone, they take an oval or elongated form, but still preserving the globular tendency even if grooved by a band of fascia or tendon.

Sometimes, tumours which present this outline, and firmly elastic feel, may break up into acini or granules, which seem to be aggregated one over the other growing each acinus contains a central fibrous basis with minute vessels, round which the oat-shaped cells arrange themselves like spokes or rays (Fig. 12, p. 12).

A similar organization pervades the solid tumours which frequently spring from the lining membrane of cysts, and which often fill up the original cysts and convert them into solid growths. This process is ably described by Mr. Paget, and will receive further attention in the chapter on cysts and chronic mammary tumours.

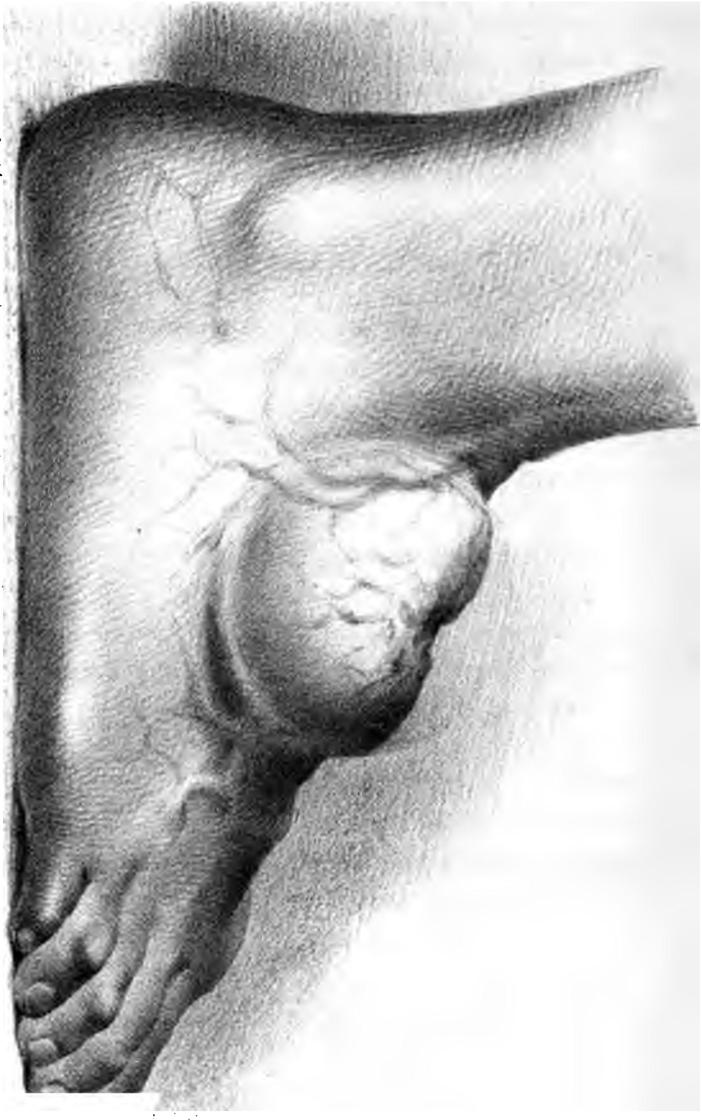
All these growths are of a firm, elastic feel, a more or less globular outline, lobed sometimes by the pressure of an intersecting fascia or band. They are unattended by any special pain, and are free from glandular or constitutional complication. They generally occupy intermuscular spaces, or lie under fascia. Sometimes, however, they seem subcutaneous; this may be deceptive, inasmuch as by continued pressure they may thin the fascia, or even at last cause its absorption. Their progress, if let alone, seems to be towards gradual enlargement, with distension of the skin to the utmost amount. A superficial ulcer forms over the most prominent part by mere force of distension. Up to this point they seem perfectly harmless, giving annoyance only by their size and unsightliness, or accidentally by pressure on neighbouring parts. As soon, however, as ulceration begins, and they are relieved from pressure over a portion of their surface, a great change takes place in their behaviour. Severe and active hæmorrhage has been observed from the exposed surface of some of these tumours; but it is much more common to find the direct loss of blood limited to a constant surface oozing, which, with some slight purulent discharge from the ulcer, constitutes all the loss that the system sustains for a short time. By slow d softened portion much blood escapes and becomes in part organized and in part merely coagulated. With each interstitial hæmorrhage there is probably also some external loss of blood; in any case all that leaves the vessels is lost to the system; by degrees this hæmorrhagic character is imparted to more and more of the tumour, which now increases in size with great rapidity. A fungus shoots out from the ulcer, not like the ordinary fungus of a cancer, which is somewhat regular in its rate of growth, even if that be rapid, but at irregular intervals, by very variable amounts, and of a partially organized and partially grumous substance. It seems as if deeper hæmorrhages pushed out those coagula which had been effused soon after the skin first ulcerated. Such a condition will soon wear the patient down if he be not relieved. All through, the glands seem to be free from any similar deposit, although they become irritated when ulceration and softening of the tumour sets in. As a result of this freedom from glandular poisoning, it is most rare to find secondary or rather distant deposits, even when the local disease reaches an extreme and fatal development.

These tumours, as stated above, are named recurring fibroid tumours by Paget. He gave them specially the name of recurring, from the great pertinacity with which they seem to return even after the freest removal.

The surgeon may cut them away, and before his wound has healed he may find them springing up in the cicatrix or from the floor of the unclosed portion; he may remove them again and again and be baffled by their obstinate recurrence, and occasionally rewarded by their final disappearance. Many cases are given in Mr. Paget's work where able surgeons removed these tumours over and over again without recovery. The special form of tumour is rare, and I can give but one instance of it from my own experience. That case is however so singular that I shall be pardoned if I give it in *extenso.*

In the month of March 1854, a gardener from Donnybrook, named Doyle, was sent to me by the late Dr. Harrison, for whom he worked. He had perceived a small movable subcutaneous tumour on the dorsum of the right foot, in July 1853. It grew rapidly until Christmas, 1853, when it had almost attained the volume of a large orange. It was never painful unless after hard labour; then it became severely painful, the pain being a steady, heavy pain, not lancinating. As it slowly increased, the integuments gave way over the centre of the tumour, where they were most on the stretch, until there was a spot bare of skin, about the diameter of a shilling. It bled a couple of times, slightly, from injury. There was a constant but very slight purulent discharge from the ulcer. The tumour was soft, elastic, almost fluctuating, and lay superficial to the tendons, which moved freely under it, and the skin, though tightly stretched, was not incorporated with it, even at the margins of the ulcer. The man's general health was perfectly good. No glands in the neighbourhood were enlarged, nor in the groin. He had some old cicatrices on the leg from varicose veins which had suppurated, and one gland in connection with these on the inner side of the head of the tibia was enlarged. I mention this, because the presence of this gland was looked upon as decisive of the disease of the foot having extended beyond the primary seat, and was one of the main reasons why amputation above the knee had been proposed to him by a very eminent surgeon, as the only means that held out even the hope of a cure. The man refused to lose his limb.

PLATE VIII



and I removed the tumour on the 15th March, 1854. There was a good deal of hæmorrhage during the operation, principally owing to my cutting into the substance of the tumour at first. The tumour was contained in a very thin, false cyst of condensed cellular tissue. It was nodulated, but not lobed; its texture was friable, tearing readily, and making it hard to get out whole. I cauterized the part on which it lay with caustic potash, both to check hæmorrhage and destroy all tendency to re-growth, if possible. There were few large vessels running into it, but a general arterial oozing from the surface. Six days after the operation some fungous-looking growths sprung up on the floor of the wound, and he further got erysipelas—which was then epidemic,—with severe fever and great enlargement of the glands of the groin. These alarming symptoms subsided under simple treatment, and in a fortnight all was healing kindly.

May 9.—I snipped off three small nipple-like growths, and touched their bases with caustic, and dismissed him well, by the end of June.

In September 1854, and again in May 1855, I removed from the cicatrix small tumours, the size of beans. On the last occasion I scraped the tendons, and denuded the fascia of all cellular tissue, and made sure of complete removal. Since that date I have repeatedly seen the man, who is a labourer, and resides at Donnybrook, and there has not been the smallest return of the disease, either local or general.

I shall now briefly describe the appearance of the tumours. The first and largest was slightly nodulated, owing to its accommodating its shape as it grew to bands of fascia that passed over it. The other gr was dry, nothing exuding from the surface when cut open but some serous fluid. They were friable, readily breaking up into little seeds or acini, which were individually very tough and resisting. These acini seemed to hold together in masses towards one common centre. When put under the microscope they were found to present small, pale, delicate cells (Fig. 1), not as large as the nuclei of cancer-cells, of a long, oval shape, sometimes elongated into a sort of tail or fibre. Numbers of these seemed to radiate from a common centre (Fig. 12). There was little fibrous basis, and the vascular tissue was very fine, and scarcely to be made out. The nucleus of these cells was also pale, and small in size.

The secondary growths differed from the original only in the manner in which the cells were arranged. They lay regularly, like rows of beads, the centre of one cell corresponding to the ends of two other cells.

In Mr. Paget's 'Lectures on Tumours' (vol. 2, p. 168), I find a case in many respects similar to this of Doyle. The microscopic description given by him refers to the secondary tumour; it is almost identical with that of the primary tumour in Doyle's case. I give it in his own words, premising that, following H. Bennett, he applies to it the name of fibro-nucleated tumour, at the same time expressing a belief that it will be found most nearly related to the recurring fibroid tumour.

"The only well-marked case that I have yet seen was that of a boy, ten years old, on the palmar aspect of whose forearm a small indentation was noticed at birth. This part was slightly wounded when he was two years old, and from that time a tumour began to grow. When he was four the tumour was removed, of course completely, by Mr. Sands Cox; but the wound did not heal before another growth appeared. This increased at first slowly, but at last quickly;

and when the boy came under my care it formed an oval swelling, rising to nearly an inch and a half above the surrounding skin, and measuring from three to three and a half inches in its diameter. The skin over it was very thin, adherent, tense, and florid, and at the centre ulcerated and superficially scabbed; the ulcerated surface was granulated, like one slowly healing. The mass felt firm and elastic, and at its borders very tough, like the tissue of a cicatrix; little cord-like branching processes extended from its borders outwards, in the deeper substance of the cutis; and above the principal mass another, like a small flattened induration of the skin, was felt. The growth was not painful, and the general health appeared good. Some axillary glands were slightly enlarged.

"I removed the whole disease with all the surrounding skin that appeared in any way unhealthy, and large quantities of the fascia of the forearm and of the intermuscular septa, to which the base of the growth adhered intimately, and which were indurated and thickened. The wound very slowly healed; the enlargement of the axillary gland subsided, and I have heard from Mr. Oliver Pemberton, under whose care the recovery ensued, that the patient remained quite well fifteen months after the operation.

"The tumour was intimately adherent to all the parts adjacent to it, yet was distinct and separable from them. Its section was smooth and shining, of stone-grey colour, shaded with yellowish tints. It was lobed; but in its several lobes was uniform, and with no appearance of fibrous or other structures; but intersected irregularly by white and buff-yellow branching lines, where the microscope found a fatty degeneration of the tissue. In texture the tumour was firm, but easily breaking and splitting into layers, shell-like;

materials; namely, nuclei and a sparing granular or molecular substance in which they were imbedded.

"The nuclei were generally of regular elongated oval shape, from $\frac{1}{1500}$th to $\frac{1}{2200}$th of an inch in length, and generally bi-nucleolated; comparatively few were broader, or reniform, or irregular. They were very thick-set in a molecular basis-substance, and in many parts (perhaps in all that were not disturbed) they appeared as if arranged in overlying double or triple rows, which, radiated to a distance from some point, or from some space of round or elongated oval form. These spaces, if they were such, appeared full of molecular matter."

There are other cases grouped by Mr. Paget under the heading of recurrent fibroid tumour, which I should prefer to classify under the head of fibro-plastic; both microscopically and clinically they are more allied to that group. Such is the case operated on so frequently by Mr. Syme, (p. 159), as well as two under Mr. Stanley's care.

I have met records of other examples of this form of tumour, but those given above are sufficient to show the nature of the growth in every aspect. The disease is one far less malignant than cancer, prone to recur, yet not incapable of ultimate cure. It possesses well-marked clinical features, sufficent to enable us to recognise it, and from a comparison of these with its minute structure, it seems rightly placed between the fibro-plastic and the fibrinous tumours. It is about equally removed from cancers on the one hand, and simple fibrous tumours on the other.

As far as we know of it, it may be found in any part of the subcutaneous layer of areolar tissue; nor can we say it affects one locality more than another. With regard to age, we are alike unable to assert that it favours one period of

The fibro-nucleated are almost identical with the fibroid: they are, perhaps, nearer than it is to the fibro-plastic in the size and form of their elements.

A remarkable case of this kind is given in the 'British American Journal' for August, 1832, from the practice of my friend and former fellow-student, Dr. Reddy, of the Montreal General Hospital.

Edward Walder, aged 48, a native of Ireland, was admitted into the Montreal General Hospital, on the 27th July, 1862, in order to place himself under treatment for a large tumour which had been growing for some time from the back of his hand.

His family history is good; his countenance has a healthy appearance; good ruddy colour, and not the look of a person suffering from malignant disease.

He states that the present affection commenced about eight years ago, in the form of a red hard swelling about the size of a pea, on the dorsal aspect of the thumb, unattended with pain, except on pressure.

The tumour gradually increasing in size, he was sent by a medical man in Montreal about a year ago to the Montreal General Hospital. At that time the tumour was circular in outline, presenting a sharp apex; the surrounding skin was slightly elevated, and seemingly on the side of the tumour a second small elevation was observed, which soon grew to a considerable size.

While in hospital various plans of treatment were pursued without diminishing its bulk, and on being punctured about half a pint of a brownish-white coloured fluid exuded. The wound soon healed, leaving the tumour about the same as on admission.

He now left the hospital, and felt no apprehension till increase, and he sought re-admission on account of sudden hæmorrhage from the surface of the tumour while working.

He called on one of the surgeons of the 47th regiment, who stopped the bleeding. Since last year the tumour has altered much in shape and size. It is about the size of an ordinary cocoa-nut, of an irregular nodulated shape, and having a dusky-red mottled colour, occupying the dorsal aspect of the hand, with the exception of the ring and little finger; it is quite moveable, soft to the touch, and on the upper and dorsal aspect there is a slough about the size of an English shilling. When the hæmorrhage took place he suffered pain, especially when pressed or much moved. There are no glands enlarged in the axilla. A consultation being called, amputation was deemed necessary. Dr. Reddy, assisted by Dr. Fraser and Dr. R. P. Howard, performed the circular operation about three inches above the carpus; few vessels required ligature. To-day, August 11th, the stump is progressing most favorably. There has not been any unfavorable symptom from the beginning. Dr. Reddy made a microscopical examination of the contents of the tumour before operating, and exhibited drawings of the cells which he discovered. Some were oval oat-shaped, containing a well-marked nucleus (dot like); others had nucleoli and appeared more elongated, and several seemed joined one after another; these were described as presenting a pale colour.

The tumour was of the soft variety, and when on being divided after removal, had the appearance of encephaloid matter in mottled layers, soft, elastic, easily broken down, and exuding a thin serous juice.

In November, 1863, this patient was in perfect health and doing well.

CHAPTER XII.

FIBRINOUS TUMOURS.—HÆMORRHAGIC TUMOURS.

These tumours originate in a distinct effusion of blood, which becomes the seat of an organization. While the process of cell-development is going on in the original clot a fresh hæmorrhage occurs into its substance; the tumour is increased in this way by successive hæmorrhages and successive organizations of or in the clot. The primary hæmorrhage will generally be traced to a blow or other injury. Sometimes the history is of a succession of hurts. In other cases there is no account of successive violence; the primary effusion also may be trifling and insignificant compared with the ultimate development of the tumour; or, again, it may be so considerable as to leave little room for the subsequent additions. Other differences will arise from the distance of time between the extravasations; in some the interval is so great as to leave room for consolidation of the clot, the resulting tumour being then firm and elastic as india rubber; in others the hæmorrhage recurs so rapidly that there is much fluctuation, and in the intermediate cases there will be intermediate elasticity similar to what is felt in encephaloid cancer.

In all cases in which I had an opportunity of dissecting these tumours they were encysted. In some the cyst was merely condensed areolar tissue, in others it was a bursa, and in others the disease was not merely encysted, but cystic.

each of which had been the site of many successive hæmorrhages, although some cysts showed evidence of having suffered more in this way than others close beside them. For convenience these may all be considered in the present chapter, although the last group belong properly to cystic tumours.

The minute structure of all may be dismissed very briefly: It is found to consist of the ordinary elements of clot undergoing organization, or, as the fashion now goes, becoming the seat of cell-development. It is scarcely worth discussing whether of these two views of this physiological process is most convenient. Both are true; though exclusive adhesion to either form of expression will lead to error. Any one who will take the trouble of studying the changes which occur in a clot of blood effused among living tissues must come to the conclusion that the changes in it, which are called its organization, commence from the outside where it is in contact with vascular and organized tissues; but he can scarcely avoid the conclusion, if he be an attentive student of nature, and not a mere retailer of other men's dicta, that the new cells which spring from the living tissues into the clot, make use of its substance for their development as freely, *cæteris paribus*, as they make use of the material supplied to them from blood still circulating in the vessels. In other words, although the coagulum has become stationary and extravasated it is not necessarily dead matter, incapable of being utilised for the purpose of cell-growth. In fact we see that when a clot does die, so as to be incapable of supplying material for growth, it acts as a thorn or foreign body of any kind will do, and is cast off by suppuration. Those who deny the power of a clot to become organized are apt, I think, to reason from the appearance of a coagulum as formed outside takes hours, or even days, instead of minutes to arrive at a solid state, and that it does not part with its vitality even then. The formation of organized clots in the heart, in aneurisms, and elsewhere, clearly shows that the separation of lymph may be at first mechanical, and that the lymph may subsequently become organized into cells and fibres. That such organization will require pre-existing nuclei and cells is, no doubt, true; hence it proceeds from surfaces or points of living tissue possessed of cells and nuclei; but it is equally certain that the new cells are formed out of the very substance of the coagulum as long as it possesses vitality, which will be as long as putrefactive changes in its substance have not set in.

The structure, then, of these hæmorrhagic tumours is the same as that of a clot of blood undergoing organization, namely, cells and fibres of lymph in various stages of development mixed with fragments of colouring matter, broken blood-corpuscles, crystals of hematine and cholesterine, and all the odds and ends of a clot dissolving into its elements, and applying them to the formation of new elementary tissues.

As the feel and aspect of these tumours vary a good deal, both before and after removal, I shall not attempt to generalise either their symptoms or appearances, but pass on to detail a few examples which will serve as types of the various forms under which they will be met by the surgeon.

These tumours are sufficiently common to have deserved more distinct recognition than they have hitherto received.

Hæmorrhagic tumour in the ham.—A labourer received a blow from a spade handle in the thigh, close to the vessels as they pass into the popliteal space. A small soft tumour soon appeared, which gradually grew large and more several years after the injury, it had grown to a large size. It filled the popliteal space, and projected largely on its inner margin. It was firm, heavy, loosely rolling in the somewhat loose areolar tissue of the ham, painless, but very troublesome from its weight and interference with the motions of limb. No glands were enlarged in the groin, nor was the current of blood interfered with in the veins. There was neither œdema nor varicosity.

I removed it, not without difficulty, as often happens with tumours which are apparently loose and rolling. The man got well, left the hospital, and remained well for some months. He lived in a very remote part of Ireland, and out of the way of medical advice. I subsequently heard that a semifluid tumour had reappeared in the ham, and that he suffered much pain until it broke, after which he soon died of exhaustion from profuse discharge, but whether of blood or pus my informant was not aware.

The section of the tumour was singular. The centre was occupied by a recent coagulum, black, and semifluid. This had probably coagulated after the removal of the tumour. Outside this was a layer of soft, discoloured lymph, the remains of an earlier coagulum in process of organization. Outside this, again, was another and another, layer upon layer, each less dark, and more firm and thin, until the outermost layer was reached, which was a thin, but very firm and close, envelope of highly condensed areolar tissue, intimately adherent to the layer underneath it, and endowed with vessels as abundantly as any natural fibro-areolar tissue of similar density. It strikingly resembled a cured aneurism to the eye. I could trace no special connection with vein or artery, such as would have accounted for the internal hæmorrhages, which had evidently been frequently repeated in its

its successive enlargements. It was a striking example of the law by which like breeds like, as here was a tumour which, starting from an effusion of blood, grew by reason of successive hæmorrhages.

The tumour was at that time quite new to me. I soon had an opportunity of seeing a similar one in the testis.

The patient, an elderly man, not very bright in his intellects, had concealed for years a gradually increasing tumour of the testis. It had originated in a blow, with effusion of blood into the substance of the organ; by degrees it reached an enormous size, and as the poor man found he could not conceal it any longer, he made an ineffectual effort to remove it. This resulted in gangrene of the parts, and in his death. The tumour weighed nearly six pounds; it was very solid, and was formed, as the last case, of concentric layers of organized lymph, the older layers outside and the softer and more recent in the interior. The fibrous basis of the testis could be distinguished, pushed to one side, and compressed; the proper glandular tissue seemed to have disappeared. There was some difference of opinion as to what the growth was, some calling it scirrhus, others, with less reason, encephaloid. Mr. Paget, who kindly examined a portion of it, stated it to be composed chiefly of small lymph-cells, and not to be cancer. As I had seen the previous case, I readily recognised it as the hæmorrhagic or fibrinous tumour. In the areolar tissue and skin over the pubis a multitude of very minute cysts were crowded; their walls were converted into cartilage, and their gray colour and toughness under the knife had helped to the supposition of scirrhus, which some, who examined it with haste, had entertained.

The following case is an example of cystic disease termi-

A labouring man, aged forty, received some injury of the left testis in 1854. Soon after he observed a small, hard kernel on its inner side. This increased slowly up to April, 1860, and became gradually troublesome from its size and weight. From that date it rapidly enlarged, and by its traction on the cord, became the cause of much pain. There had been no second injury, as far as he could remember, to account for the sudden increase in the rate of growth. He made some attempts to reduce the tumour by mercurial ointment, strapping, and the use of iodine, with little if any success. He was otherwise healthy, never had venereal in any form, and is not married. The tumour was the size of a cocoa-nut, measuring five and a half inches by four in its diameters; it was oval in outline, departing little from the form of the healthy organ. It was firmly elastic in all parts except the upper and anterior, where a collection of fluid evidently existed; pressure in this point gave the feel as if the finger sank through the fluid into a cup-like depression in the solid tumour; a grooved needle inserted here gave exit to a couple of drachms of bloody serum. No enlargement of glands could be made out; the skin was not adherent in any part to the tumour; nor was there any pain experienced except what was referable to the traction on the cord. The man's health was good. The tumour interfered with his work; it was not cancer, and I removed it August 10th, 1860. He made a rapid recovery, and is since well. After removal it weighed thirteen and a half ounces. A section of it (Pl. IX, fig. 1) showed a number of cysts filled with lymph, organized in the peculiar manner which is characteristic of the organization of coagula. The cysts were perceptible on the first section, and their glistening whiteness contrasted strongly with the pinkish colour of their contents,

A labouring man, aged forty, received some injury of the

PLATE I

Fig. 1.

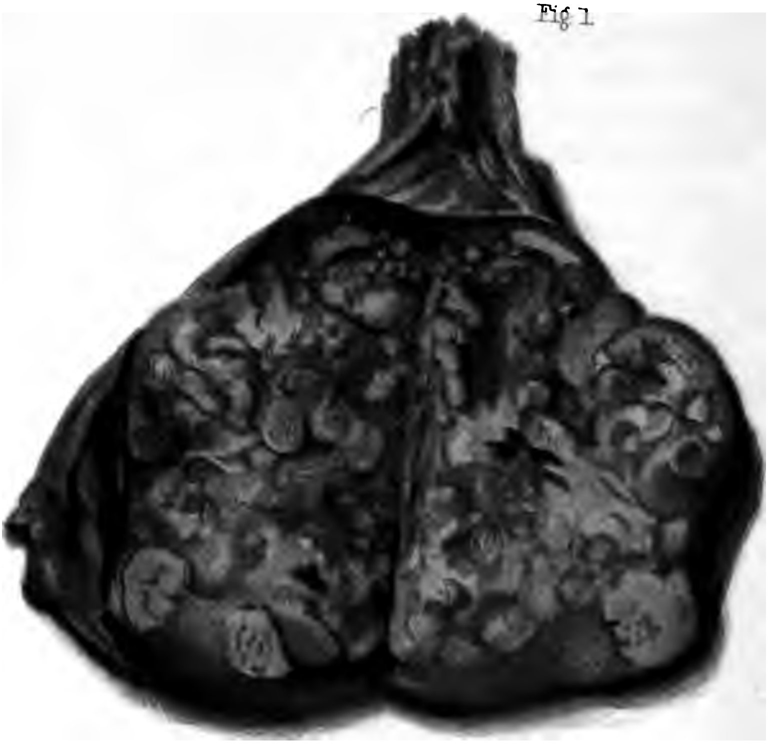
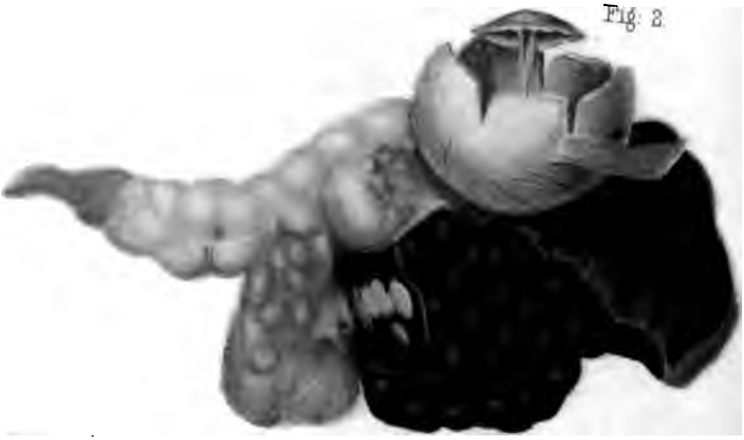


Fig. 2.



which could be seen in detached islets through the tumour. All the cysts were full of these remains of coagula. When hardened by a day's immersion in Goldby's solution, the coagula became brittle, and could be readily turned out of the cysts, to which, however, they had a minute vascular attachment; they were not attached by any pedicle to the wall of the cyst, as in the proliferous variety, but seemed, as in the previous case, to be hæmorrhages into the substance of the organ, which had acquired an independent vitality, and had become surrounded by cysts.

A superficial examination would readily confound them with masses of encephaloid, which their colour and outline caused them to resemble; a careful inspection, independent of aid from the microscope, showed them to be more firm and less juicy, more friable and less pulpy, less evenly white, and more yellow than encephaloid cancer.

The following case, entitled "Fungus Hæmatodes," in the 'Catalogue of the College of Surgeons,' seems as like as possible to the one just detailed. The specimen preserved in the College museum also seems identical with it in structure:

Fig. *b*, 435. Fungus hæmatodes of the testicle, removed from an elderly man by operation. The disease had been going on for six years previously; and its progress was attended with severe pain principally referred to the corresponding lumbar region. The testicle, one-half of which is here preserved, formed a tumour globular in shape, and weighing four pounds; its external surface was smooth and tolerably uniform; in some situations it had a slightly lobulated appearance; pressure communicated an elastic sensation to the finger. No vestige whatever of the natural glandular tissue remains. The mass, as seen in the section.

ranged concentrically; the intermediate spaces having been in the recent state filled with fluid blood: the new deposit is much softer, and more manifestly fungoid, the nearer it approximates to the centre of the tumour; towards the circumference it is firm and solid, being evidently in an earlier stage of development. The whole is enveloped by a closely adherent capsule, whether an expansion of the tunica albuginea or a new formation it is impossible to determine. I have seen very similar conditions in the breast, where cysts have become filled with grumous blood, more or less imperfectly organized; generally speaking, however, the growths within cysts, in the mammary region, are more firm, constituting what Paget terms the proliferous cyst, a stage in the production of at least some of the chronic mammary tumours.

In the course of the past year I had in the hospital two cases of this form of tumour, in which remedies seemed to have the effect of diminishing the growth; whether a permanent cure can be effected, or whether the hæmorrhagic tendency will reappear, time will tell. Certainly their rapid increase was stopped, then they diminished, and the pain, which had been excessive, disappeared. One was situated on the right tibia of a man of middle age; it was smooth, elastic, so fluctuating in one part that I punctured it with a grooved needle, and got a little soft grumous clot for my pains; repeated applications of tincture of bromine stopped its growth, relieving the pain, and by slow degrees it was disappearing when the man left the hospital.

The other tumour filled the left axilla of a middle aged woman; it appeared suddenly after a heavy day's work, in the course of which she felt conscious of something giving way suddenly in her arm-pit. In a few days there was a and upwards. The diagnosis when I saw her, two months after the accident, was not easy. It lay between aneurism of the subclavian, cancer, and hæmorrhagic tumour. By repeated examination, Dr. Stokes and I were able to come to the conclusion it was not aneurism. There was a loud bruit along the subclavian artery, some feebleness of the pulse in the left wrist, large veins running over the tumour and about the breast and shoulder; the surface was undulating, the most prominent point being soft, almost fluctuating, while the less elevated lobes were firm, almost to hardness. Under the margin of the pectoral a portion of the tumour was adherent to the skin, which was livid and puckered; elsewhere there seemed always an intervening layer of fascia or muscle, which, however thin, protected the skin from contact with the tumour. Very great and constant pain was complained of in this adherent portion; more or less distress, and sometimes darts of severe pain were felt through the entire tumour. The arm could not be brought to the side voluntarily, the shoulder was elevated, and both scapula and clavicle were pushed out of their proper places. The most careful examination failed to detect pulsation in the tumour, except where a slight thrill was transmitted from the artery through the softer part, just under the inner third of the clavicle.

For the first week or so the tumour grew palpably, and became softer. I punctured it with a grooved needle, and got a small drop of serum with buff-coloured lymph, soft and curdy, no pus, no blood, and, on inspection, no signs of cancer-cells. Hence, although the tumour seemed inclined to grow, and was decidedly painful, I set the idea of cancer aside, the more so as by repeated applications of bromine in tincture, and of bromide of proportion of twenty drops to an ounce of spirits of wine, smarted severely and reddened the skin for several hours; but the deep pain was relieved by the first application, and did not return after the third or fourth. I applied the tincture of bromine four days in succession, by which time the surface was too tender to allow its use for some days. The diminution of the tumour went on slowly but perceptibly, and in four weeks she was so much better that she left the hospital to resume her life of hard work as a charwoman. I have since seen her, and the progress towards absorption of the growth, though slow, has not ceased.

Remarkable instances of this disease have been described by Mr. Hey under the title of fungus hæmatodes. Indeed his paper on the subject comprises two distinct classes of tumour, encephaloid cancers which have fungated, and various forms of non-cancerous tumour, into the substance, or from the surface of which hæmorrhage has taken place. I met with a singular example of this hæmorrhagic tumour, situated in the bursa over the olecranon. The patient, a man named Fallon, from Ahascragh, was sent up to me, in 1861, by my valued friend Dr. Kerans. He had for many years suffered from a sort of chronic bursitis. Ultimately the bursa suppurated and burst. After fourteen years, a large black, sloughy mass was found protruding from the lips of an irregular opening in the skin over the bursa; this mass, as large as a goose's egg, was now fixed to the periosteum; the skin was thick, hard, and brawny, adherent to the tumour at the margins of the ulcerated opening, but apparently free from such adhesions elsewhere. It often bled freely; there was always a foul and abundant discharge from the surface, more or less mixed with fragments of clot, and of more organized material cast off as a slough. There was an inflamed and unhealthy sore would produce, and the man's general health was not injured; the glands did not sympathise with it. I removed the tumour from the bone, which was soft from protracted contact with inflamed structures. In the incision I included with the tumour only the diseased and adherent portions of the skin, and dressing it with firm pressure, which was kept up for many days, a complete and permanent cure was effected. The structure of the tumour was of the same concentric material, built up from within by successive hæmorrhages, the outer layers firm, thin, and pale; the inner mass, of grumous half-coagulated blood and lymph, in all respects resembling the tumours already described.

The man has remained perfectly free from disease up to this date.

Years ago I assisted the Mr. Rynd in amputating above the knee for a tumour of this kind. The patient, a girl of eighteen, fair, with dark hair, had suffered from an inflamed bursa. A fungating tumour, similar to this, sprang up through an ulcerated opening on the inner side of the bursa, and with startling rapidity destroyed the joint. In four days from the time when the joint was opened by the spread of the side of the tumour into it, the whole limb below the knee was hopelessly disorganized; the soft tissues were engorged to the point of gangrene. Large coagula, black and bleeding, protruded from the wound; the joint became enormously distended with synovia, and the consequent sufferings of the patient were unbearable. Amputation was performed to her great relief, but the inroads on her strength from intense pain and great loss of blood, were too great to admit of her recovery. She sank, within twenty-four hours of the operation of pure coagula of various dates and degrees of organization, and, in addition, some firm, fleshy material grew from the lining membrane of the bursa; in this some elements of a fibroplastic character abounded—they were exactly like melon seeds in outline, with moderate nuclei. So that the growth was a mixed one of fibro-plastic and hæmorrhagic materials.

I have seen two examples of this tumour in the breast. Here it will be readily recognised by its periodic fits of growth, its globular outline, and great weight. For its size it is the heaviest of tumours, but apart from its weight can hardly be called painful. In the cases alluded to, discutient lotions seemed to retard but not to stop its progress, the weight ultimately becoming overpowering, and rendering amputation advisable. There was no glandular poisoning in any instance.

CHAPTER XIII.

COLLOID—(MATIÈRE COLLOIDE—TISSUE COLLOIDE, LAENNEC —ALVEOLAR OR GUM CANCER.)

Colloid is generally classed as cancer, yet there seems good reason for the belief that it is far removed from cancer both in minute structure, and in its clinical features. Colloid is met as a distinct and partially encysted tumour, and as an infiltration. There is some difference in its characteristics under these two conditions. A matter resembling colloid to the eye, is also met in the interstices and loculi of some scirrhous tumours; but this may be set aside as not meriting the name of colloid; frequent examinations have satisfied me that this pseudo-colloid is merely a collection of cancer-cells of somewhat rapid growth. So that, practically, we may limit the name to such jelly-like tumours, or infiltrations, as are to be met apart from scirrhus.

The infiltrated form of colloid is chiefly met in the submucous tissue of the intestines, and does not therefore come so directly under the cognisance of the surgeon. I do not suppose that any special symptoms can be ascribed to this form of disease, so as to distinguish it from cancerous or epithelial affections during the patient's life, nor is it likely that we should be able to apply any special treatment, even if we could be satisfied of its presence. When colloid occurs in the stomach it is said to have its seat rather in the cardiac orifices; if this be the case, corresponding symptoms will present themselves, but the cases I have seen are too few for me to form any opinion on the point. When examined after death, colloid infiltrations will be found to present a surface more or less irregularly mammilated, of a greenish yellow colour, and softly elastic feel. When they are cut into, their colour is more or less of the same yellowish green, perhaps shaded with gray. The fibrous tissues of the part are somewhat thickened, the peritoneum included; the muscular coats of the intestine may be thickened, in a state of yellow oily degeneration, atrophied in points, or perforated; the mucous membrane may also be absent in points, and where present it generally admits of being peeled off the tumour. The colloid matter is contained in loculi of a round outline, varying in size from a pin's head to a pea, the septa being pretty firm, and, according to Walshe, varying in thickness so as to seem as if secondary loculi had formed outside the primary. The fibrous stroma is evidently only the proper fibro-areolar tissue of the original structures, condensed, or stretched, and hypertrophied.

The contained colloid matter consists of vast numbers of most elementary cells, small in size, with small nuclei, rapid in growth and multiplication, incapable of development, and prone to perish as rapidly as they grow. This form of colloid is not met with in the liver, or other parenchymatous glands, although they are sometimes the seat of other non-cancerous infiltrations very closely allied in form to these. Colloid, as a distinct tumour, is also met in the abdominal cavity, as in the folds of the omentum; but it is as a tumour affecting external parts of the body, that it possesses interest for the surgeon. Here, too, some of its most singular features are developed—features so striking as to referable to its peculiarly embryonic structure as their cause.

Colloid, as an external tumour, may be found on the trunk or extremities; it may be of small size, or may reach an immense development. It is a light tumour, and yet I have known one removed which weighed seven and a half pounds, and was as large as a good sized leg of mutton. In feel it resembles a fatty tumour, but is less doughy, more elevated, and has a peculiar tremulous elasticity not easy to describe in words; its surface is rather smoother than a lipoma; its edge, also, is less scalloped, perhaps even quite smooth. Still it is very likely to be taken for a fatty tumour, and removed as such. As primary tumours, I believe they are subcutaneous, but this is conjectural, the cases I have met being all secondary. When removed they are found in a sort of false cyst, at least the areolar tissue is more or less condensed round them, and renders their enucleation easy. They are either quite transparent, like jelly; muddy, like size; milky, like blancmange; of a pink hue, transparent or opake; white and gray, like brain; or marbled and mottled in various mixtures of the above colours—in the same tumour great variations will be met in this respect. Yet of whatever colour they may be, their consistence seems always that of jelly, or size; the surface, when cut into, seems almost homogenous; they break up like jelly into irregular angular fragments; their section is dry, no juice or cream exudes, or can be scraped from them, except a trifling amount of serosity.

Under the microscope they present a mass of fine cells, and granular matter. The cells are of the most elementary description, small and pale, with small nuclei; their stromal subst

All this is consistent with a non-cancerous nature. Yet, from their embryonic character, we should be justified in looking for a recurrence of growths thus composed. Accordingly we find that these colloid tumours are the most singularly persistent in recurrence of all tumours in the domain of surgery. I have known between twenty and thirty recurrences in the patient, and all this without the enlargement of a gland, or the slightest deterioration of the general health.

These fresh tumours spring from the cicatrix or from the cellular tissue beside it, soon after the wound made by the surgeon's knife is healed. The most complete and extensive removal is insufficient to ward off a relapse—indeed it would seem only to give a more ample nidus for the morbid deposit, and to ensure its more rapid return.

The following are perhaps as remarkable cases of the disease affecting external parts as are upon record:

Some thirty years ago the late Professor Macnamara, at that time Surgeon to the Meath Hospital, removed from a man named Whelahan, of middle age, a large tumour which grew over his scapula. Its existence had been accidentally discovered while the man was drying himself after a bath, when, feeling an excrescence on one side, he put up his hand to find if he had one to correspond upon the other. It was quite painless, but growing rapidly, became inconvenient from its bulk and disagreeable appearance. In a few months it was as large as a leg of mutton, and much the same shape. The skin over it became much distended and livid; finally dark spots appeared upon the surface, and part of the tumour seemed about to slough away, from its having overgrown its powers of drawing nutriment from the blood-vessels. It

The wound healed, and the man returned to the country, with a charge from the professor to return if the tumour should reappear. From this circumstance one would judge that he had an idea of its nature. However that may be, the man came back on three occasions to him, and after his death, in 1836, to Professor Porter on four occasions, to have tumours, from the size of a walnut upwards, removed from the cicatrix or its neighbourhood. In the year 1847 this same patient made his way to the son of his first friend, Dr. Rawdon Macnamara, who has worthily succeeded to his father's professorship, and to his other post of Surgeon to the Meath Hospital and County Dublin Infirmary. From 1847 to 1860 not a year elapsed that Mr. Macnamara did not operate at least once upon him, and often twice, so that altogether he has been under the knife of the surgeon between twenty and thirty times. It should be observed that on every occasion, after the removal of the tumour, the exposed surface was carefully and minutely examined, and every trace of the morbid growth, or of anything resembling it, was taken away. Still it returned, but with this singular feature, the cicatrix of the last operation was never the site of the new growth. One would be removed from over the acromion process, and its successor would be found occupying a spot over the angle of the scapula, so that after a while the whole scapular region was covered with scars and indentations. I had the opportunity of assisting Mr. Macnamara on several occasions, and can testify that in all but the last, every particle of the growth appeared to be removed. The last time (in 1860) several distinct masses had sprung up about the spine of the scapula, and the scapular origin of the deltoid. These were dissected off as fully as possible, and the tissue were deeply imbeded—more so than had appeared on any former occasion.

The tumours seemed to turn clean out, as if they were encysted; this appearance, however, was utterly deceptive. In reality they filled the irregular loculi and interstices of areolar tissue and fascia of the part. Each tumour resembled a bean, or sweet chestnut in outline, the gelatinous nature of the growth causing the angles to subside; so much so, that if a piece were broken off it immediately lost its sharpness, and became rounded at the seat of fracture. They varied much in colour, some milky, others clear pink, or gray, streaked with red; some mottled or marbled, and others like brain substance. They had a smell of brain also. This microscopic structure has been already described. It was, in brief, wholly an agglomeration of the smallest lymph cells, held together by the faintest possible areolar tissue, the fibres of which interlaced each other in all directions, running straight across the field of the microscope. So delicate and intricate were they, that I found it impossible to draw them so as to convey any clear idea of their appearance, and, after many efforts, I am obliged to leave them unrepresented. The cells are very simple, like small lymph-cells, round or slightly oval, such as are represented in Plate I, fig. 10 (omitting the cells with tails, which resemble spermatozoa on a large scale). Along with these fine cells and fibres much oil was observed in the field. The microscopic appearances, as well as the physical characters of the growths, coincided with those found in cases of colloid tumours of the intestines; owing, however, to the difference of the nidus, there was an absence of the curvilinear stroma, which characterises them.

Dr. Campbell, of Lisburn, has given me detail of the case from seeing some of the tumours in the hands of Mr. Macnamara, at a meeting of the Pathological Society.

In February, 1863, Mr. Macnamara, at this time communicated the following details, from Dr. Campbell, of the earlier history of the case:

"W. M—, aged fifty, [47] about three years ago, accidentally noticed a tumour on the upper part of the right arm, over the deltoid muscle, as large as a hen's egg. As he had never experienced pain or inconvenience of any kind in the part, he thought it a natural formation, and expected to find the same condition on the opposite side; failing to discover which, he concluded it was a diseased growth, and at once sought for advice. The tumour was removed in May, 1860; a second appeared and was removed in three months afterwards; a third in December, 1860; a fourth in March, 1861; several in June of the same year, and one a few months afterwards.

"From that period until now I have operated about ten times, on each occasion removing from three to six or seven tumours, varying in size from that of a pea to that of a pigeon's egg, or larger. The last operation was performed this day, when I removed by several incisions the tumours which I send you. On one occasion they had reached a great size in the line of cicatrices of former incisions. I then removed, by two elliptical incisions, all the old cicatrices, together with the fibres of the deltoid, nearly down to the bone. Invariably a recurrence took place before the wound was entirely healed; never in the course of the recent wound, but frequently in that of an old cicatrix. On two this, however, seemed rather to hasten the growth of the tumour.

"I examined some of the tumours first removed, with the microscope, but could only detect the ordinary lymph-cells. The case altogether is one of more than ordinary interest, and appears to me to belong to the class of tumours described by Mr. Paget as the recurring fibroid tumour."

Having been requested to examine the tumours, I felt interested to know how the case went on, and upon writing to Dr. Campbell, last May, he most kindly furnished me with further particulars.

"Since the date of my letter to Mr. Macnamara, the case has presented many most interesting features; the question of amputation had been discussed here two or three years back. I was opposed to it then, the tumours being small, recurring not more frequently than at intervals of three months, and the patient's general health good. The surgeons of Stevens' Hospital, and others in Dublin who saw the case, coincided in that view; they considered the removal of the tumours, as they recurred, the best mode of treatment. After my report to Dr. Macnamara, I operated five or six times, removing tumours, generally two or three, varying in weight from half an ounce to four ounces; the wounds usually healed rapidly, but at last they did not do so, but continued to discharge an offensive pus, and then new tumours sprung up from the bottom of the wound. Finding his health failing, emaciation, hectic, night sweats, and a harassing cough, I recommended immediate amputation at the shoulder-joint. The patient readily consented to this, a day was fixed for its performance, when a medical gentlemen, whom he had previously consulted, advised him to consult an eminent surgeon in Scotland, as to the propriety of operating, as he course, offered no further opposition than expressing my doubts as to the advisability of postponing for any time the operation. The Scotch surgeon evidently took a most favorable view of the case, as he assured the patient he would effect a complete cure without operation, as he had in some similar cases, by burning with sulphuric acid. After being in the infirmary for a week or more, a gutta percha mould was made to include the diseased part; into this the acid was put, and kept on for about nine hours; by some mismanagement of the apparatus the acid flowed over and burned his breast, shoulder, side, and axilla fearfully, manifesting its destructive agency much more powerfully on the healthy tissues than on the diseased mass, which at that time was as large as a good sized orange; the tumour was scarcely affected by the application, a mere thin slough having come off. After being in hospital for some weeks, he desired to return home, his health being fearfully shattered, having, in addition to great pain, suffered from hæmorrhage consequent on detaching of the slough; the vessels were with difficulty secured; amputation was proposed; the patient would not submit to it then, but returned home, hardly able to bear the journey, and terribly emaciated. At this time a most intolerable fœtor was evolved from the part, rendering the room which he occupied most offensive. I advised a few days' rest and care at home, and resolved to amputate, notwithstanding the great destruction of the parts, from which I hoped to get a flap. This I did, and formed a flap from the posterior part of the arm, and removed the cicatrices of all former wounds, as well as those of burns in the neighbourhood. The patient bore the operation well, and a careful inspection showed no trace of diseased structure remaining. The wound workhouse master, which are not light; he is able to write with his left hand, and still holds his appointment. For six months all went on well with him, but at the end of that period a small tumour began to show in the cicatrix, on the pectoral side of the flap. This gradually increased, and, when the skin became tense, I made a slight opening, and with a bistoury, guided by a director, laid bare the tumour, around which I passed my finger and dislodged it. This is the mode by which I now remove them. Within the last four months I have operated in this way three times; on the last occasion (six weeks ago), removing two tumours, one out of, though not adherent to, the glenoid cavity, and the other from the breast; they weighed more than twelve ounces; one of the wounds is now closed; a small tumour which appeared at its extremity, I touched with chloride of zinc; the other wound is still open, although contracting; from it numerous tumours are springing up, these I break up with my finger, and sometimes touch with chloride of zinc or potassa fusa; I then strap the part lightly with adhesive plaster, leaving an outlet for any discharge. This plan seems to me the best I have yet adopted for his treatment. Whenever the tumours reached the surface they became highly vascular, bleeding on the slightest touch; then his health gives way, and feverish symptoms arise. So long as they are protected from the air his health is good; although the surface of the exposed tumour is highly vascular, the general mass is not so, but something of the colour and appearance of the gray matter of the cerebellum, but firmer, having minute vessels through it. Hitherto I regarded the tumour as the 'recurring fibroid of Paget.' I am more doubtful now as to the character, as none of the cases I have seen recorded appear altogether analogous. The disease seemed altogether confined to the middle fibres of the practicable to remove the clavicular and scapular origins of the deltoid, which would be rather a hazardous proceeding, the disease might be eradicated; as it is, I see no course now open but their being turned out as they occur. Herewith I enclose one of these small tumours I turned out since receiving your note. I may add that the patient's general health is good, and that he is still discharging the duties of his office."

The microscopic appearances in this case were identical with those in Professor Macnamara's.

CHAPTER XIV.

FIBROUS TUMOURS.

There are few tissues, or regions of the body, which may not be the seat of one or other variety of fibrous tumour or hypertrophy; and, probably, there are few forms of tumour which are subject to so many delicate variations of structure according to the locality in which they may happen to originate. Those who are disposed to refine will have ample opportunity of doing so, if they choose to make a separate class of every one of these varieties. The best definition of the whole class, or group, appears to me to be that which describes them as tumours composed of the cells of connective tissue or lymph developed into more or less perfect fibres.

The purest type of fibrous-tumour, that is to say, the tumour composed of the most perfectly developed fibrous tissue, and most free from admixture with other elements, is found in the uterus.

This tumour is generally round, imbedded in the substance of the uterus, and bulging it out equally on its peritoneal and mucous surfaces. Sometimes it projects more into the cavity of the organ, when it constitutes the fibrous polypus of the uterus. These tumours are firm in texture, elastic as india-rubber, dry on section, a trace of undeveloped cell or nucleus, and just as much vascular tissue as suffices for their nutrition and growth.

In the nostrils and pharynx we find similar fibrous polypi, less firm, the fibres being mixed up with more or less undeveloped gelatinous or fibrinous fluid. However they may differ in appearance, there is no real difference of structure between the firm, fleshy polypus of the uterus, pharynx, or nostril, and the simple mucous polypus of the nose. They are alike composed of fibrous tissue, covered in some of the cases with mucous membrane, and containing more or less water in their composition; their clinical features, and physical characteristics, are widely different.

The fibrous tumours of the prostate gland differ little from those of the uterus; they are composed mainly of fibrous tissue, with a mixture of muscular fibre similar to those of the gland; they may be called fibro-muscular. In appearance they resemble the uterine fibrous tumours; both are more or less perfectly enveloped in a cyst of condensed areolar tissue.

Fibrous tumours are very common in the substance of the skin. The regions specially affected are the lobes of the ear, the alæ of the nose, the scrotum, labia majora, and the inguinal region. Much elastic fibre is mixed up with the fibrous tissue in these tumours or hypertrophies. In some cases, also, large quantities of undeveloped cells of connective tissue, or lymph, are found mixed with both forms of perfect fibres. To such varieties the name of fibro-elastic and cellulo-fibrous, or fibro-cellular tumours, have been given.

The subcutaneous areolar tissue is frequently the seat of a remarkable variety of fibrous tumour. Here the vascular which constitute the bulk of simple cutaneous hypertrophies. In some instances these vessels, largely dilated, remain permeable, and we have the erectile tumour; in others they are cut off in lengths, and form cysts which enclose blood or serum in their cavities—to these the name of fibro-cystic is given. Examples of both forms are met over the trunk and extremities; the fibro-cystic variety especially affects the genital region. I have found examples of it in the scrotum, testis, inguinal region, and deep in the labia majora, besides occasionally over the trunk and extremities.

Elephantiasis appears to be a combination of the fibro-elastic and erectile tissue hypertrophies.

Fibrous tumours of nerves are met with in which some nerve-fibres and cells are mingled with the proper fibrous tissue. These sometimes occur singly as the result of wounds of nerves, as in the painful neuroma of the stump; sometimes without injury, when they appear to be painful—if solitary—and scarcely, if at all, productive of distress when they occur in numbers. The extensive monograph of Professor Robert Smith has fully elucidated this subject.

Fibrous tumours also attack periosteum and bone. The antrum and lower jaw are the special seats of this form; but it is also found in connection with various other bones. Here there is an admixture of cartilaginous elements, and of more or less perfect bony plates with the fibrous tissue. Such tumours are firm and elastic, more or less globular in outline, spreading over, and by degrees absorbing, the proper bone; or expanding and absorbing it, if they spring up in a cavity like the antrum. There is more risk of confounding them with fibro-plastic growths than with cancer; yet there is a difference in the greater softness and smaller size of the latter, and in their greater vascularity. Pure fibrous into, but on the surface this absence of vessels is marked, while myeoloid or fibro-plastic growths are vascular throughout, and have their surface covered with blue veins minutely ramifying.

Such seem to me the varieties of fibrous tumour. Generally speaking they are not malignant. Their peculiar locality may render them unsightly, troublesome, or even dangerous, and for one or other reason the surgeon may be called on to operate; but they do not directly do harm; they do not—with rare exceptions—poison the glands or system; they may enlarge and slough, or become the seat of that hæmorrhagic degeneration of which I have spoken under the head of fibrinous tumours. The cystic form, and sometimes the cartilaginous, may become calcareous by a deposit of earthy matter in the walls of the cysts, or in the hyaline intercellular substance; but they are never, as far as I know, the seat of cancerous deposit. When removed completely they do not seem to return; but it must be manifest that some of them are so circumstanced as to be incapable of complete removal. I do not so much allude to those which are situated deep in the uterus or prostate gland. Both these situations have been found to be, at least sometimes, within reach of surgical interference. Mr. Paget mentions that portions of prostatic tumours have been removed by operation, but he gives no details. Of late years uterine tumours of a fibrous nature have attracted the attention of surgeons, with a view, first, to check the hæmorrhage, which is frequently one of their most dangerous concomitants; and, secondly, to cause their disappearance. For the first object Dr. McClintock, Mr. Baker Brown, and M. Nelaton, seem all to have independently hit upon the free incision of the enucleation or destruction of the growth. Enucleation may be performed by a free incision into the capsule of the tumour, and by manual efforts at its removal, aided by the exhibition of ergot. This proceeding is neither very certain, nor void of danger. Mr. B. Brown has, in many instances, gouged a portion of the tumour away, and seems to have had fair success. He has now, however, come to the conclusion that free division of the os and cervix not only checks hæmorrhage, but stops the further growth of these tumours. Consequently he does not now use the gouge, nor does he further interfere with the tumour after division of the cervix, unless in large tumours, where division is insufficient.

Independent, however, of these deeply seated fibrous tumours, some are so circumstanced as to be scarcely capable of perfect removal. Such, for example, as those which have their seat in the skin or subcutaneous tissue. Here the limits of the tumour are ill-defined, and much may be removed without any certainty that all has been taken. From the lobes of the ears, which sometimes become enormously hypertrophied, as the result of simple piercing for earrings, large segments have been removed without benefit. Sometimes the disease ceases, but I have also known of cases where portions have been repeatedly excised, and yet without stopping the tendency to hypertrophy. Similar results occasionally follow upon removal of these tumours from the labia and groins. But, as a rule, the whole class is undoubtedly very amenable to operation.

The first occasion in which the ecraseur was used in Ireland was for the removal of a growth of this kind. The patient, a boy of about eleven years of age, had an extraordinary hypertrophy of the prepuce. It formed a tumour two inches in length, and upwards of three in circumference. I removed, by means of the ecraseur, as much of it as lay in front of the glans penis, with the effect of restoring the organ to more natural dimensions. The entire morbid growth was not taken away, and as long as the boy remained under observation, some enlargement still remained, although gradually on the decrease. When the wound healed he left hospital, and I lost sight of him. The portion of tumour removed was composed of fibrous tissue; it was very white and firm, and contained little serum, or fluid of any kind. It had been growing for three or four years, without any apparent cause.

I removed one of the fibro-cystic or erectile tumours from the groin of a young man three years ago. It resulted from the kick of a horse received a year or so previously. Its surface was elevated and covered with bluish granules, caused by the thinning of the skin over the venous ampullæ, or cysts. It felt doughy to the hand, and pressure reduced its size. There was a deep band attaching it to the cribriform fascia, through which the blood seemed chiefly to flow into it. As it was growing rapidly I removed it as well as I could, cutting round it in sound skin, and dividing its deep adhesions by the écraseur in preference to cutting them. The contraction of the wound, in healing, seemed to act beneficially, as when he left hospital there was no appearance of any morbid growth about the part, and, as he has not applied to me again, I have no doubt he continues free from any relapse.

In the year 1857 I assisted Dr. Atthill in the removal of a fibro-elastic tumour, or hypertrophy, from the right labium of an unmarried woman. The tumour was the size, and somewhat the shape, of a saucer, and extended laterally into the vagina, and upwards on the mons veneris; it implicated the clitoris, but did not spring from it, its original seat being in the labium. It markable, dating from ten years back, when, in consequence of severe and long continued pruritus, she used a lotion that caused intense pain and high inflammation; from this period there was more or less tumefaction of the parts, and ultimately a decided hypertrophy set in, and resulted in the large tumour, which we removed by the ecraseur. Dr. Atthill tells me this patient has had no return of the growth. The structure of this tumour was fibro-elastic, that is to say, it was formed of white fibres interlacing and mixed with some yellow elastic fibre; the white, however, predominated.

In such instances as these, to which I could add numbers, the entire mass cannot be removed, for the plain reason that it is continuous with the skin, and identical or nearly so with it in structure. Yet it seems as if partial destruction or removal is sufficient to cause atrophy of what morbid tissue may remain, or to put an end to the hypertrophic tendency. This result obtains more or less in all fibrous growths. Thus, it is sufficient to break off the simple soft polypi of the ear, when the pedicle shrivels; in the uterine fibrous tumour removal of a portion in the same way causes atrophy of the rest; and in all the forms of fibrous growth, intermediate between these two extreme examples, with the exception of neuroma, the same is frequently observed. Whether in those connected with bone, as in the fibrous tumour of the jaw, it would be safe to try free incisions, is as yet undetermined; but the experiment might be made before resorting to the more formidable operation of resection.

Certainly experience leads to the conclusion that fibrous tumours seldom recur even after very imperfect operations for their removal. It is quite possible, too, that the few exceptions may have been rather fibro-plastic or fibroid, than purely fibrous will not only become atrophied, as already mentioned, when partially removed or cut into, but even without any interference on the part of the surgeon they sometimes soften and break up, disappearing entirely by absorption, or coming away in fragments mixed with pus or blood. These natural efforts at elimination arise in growths of low vitality and scanty supply of blood, such as the dense fibrous tumours of the uterus. Dangerous hæmorrhage sometimes comes on during these efforts, and will require prompt treatment, either by free division of the os and cervix or by the introduction of plugs of lint soaked in perchloride of iron.

The bromide of potassium has been much vaunted of late as a resolvent of such uterine and prostatic tumours and hypertrophies. Where there is decided increase of vascularity, with much nervous sensibility, it will be found useful in allaying them. Doses of ten or twenty grains twice or three times daily may be safely given, and hip-baths of the mother ley of Kreuznach waters may be prescribed in the proportion of a pound to six gallons of water. If the patient can visit Kreuznach, and use the waters there, so much the better. I have been disappointed in their effects in the ordinary enlargement of the prostate, to which elderly people are subject. In uterine cases they seem to be more useful, mainly from their sedative action, which is more wanted than in prostatic cases.

In looking upon erectile tumours as varieties of the fibrous, it is not to be supposed that I class all vascular tumours, such as actively growing nævi or pulsating venous tumours, along with them. In these the vessels, arterial or venous, and not the fibrous or cellular, elements, are primarily engaged; they do not come under the class of cellular or infiltrating growths.

CHAPTER XV.

EPITHELIOMA (HANOVER).—CANCROID (ALIBERT). EPITHELIAL CANCER (PAGET).

IT is of comparatively little importance whether this disease be called epithelioma or epithelial cancer, provided its difference from cancer and its analogies to it be kept clearly in view. For my own part, I have always held that its superficial origin, its slow progress, its indisposition to infiltrate the deeper structures or to contaminate the glands, the certainty of cure which follows its timely removal, and the different appearance of cancer when occupying similar localities, are of sufficient importance to outweigh the points of resemblance which it undoubtedly bears to cancer in its advanced and secondary stages. In its early stage it is strictly an hypertrophy, and in this condition it may remain for an indefinite period. Its second stage is one of hypertrophy and ulceration combined. This stage also, as far as external or cutaneous epithelioma is concerned, is slow to advance into the third and destructive stage, that of infiltration and secondary deposit.

I have ventured to apply to other tumours the term cancroid, which was given to epithelioma by Alibert, and confirmed to it by Lebert and Hughes Bennett. It is essentially a bad designation for it, and could only be accepted as long as the true nature and position of tumours were not clearly infiltrating growths similar to cancer in the locality of their origin and in the mode of their progress, I have thought it wiser to make the attempt to dissociate the name of cancroid from a disease which is essentially different in origin from cancer, and which only resembles it by what may be termed an accident of its progress. I have therefore limited the term cancroid to such growths as are infiltrations from the outset, but whose component cells are of a less abnormal type than that which characterises genuine cancer.

Epithelioma may arise on any part of the cutaneous surface, specially on the scrotum and lower extremity, and it has been observed on those portions of mucous membrane which approach most nearly to skin in texture, such as the lining membrane of the lips, mouth, and fauces, and the integument of the tongue; the eyelids, the prepuce, anus and vulva, are also its not infrequent seats. More rarely it occurs on the deeper and less exposed portion of mucous membrane, such as that lining the larynx, the pylorus, the bladder and ureters, and the neck of the uterus. Besides these natural structures, others more or less abnormal may give it origin. Thus, we find it engrafted on warts, whether cutaneous or mucous, on epulis, on nævi, on the cicatrix of a blistered surface, and, above all in frequency, on the margins of ulcers; occasionally, too, it springs forth in cauliflower excrescences from the epithelial lining of an enlarged sebaceous cyst.

I have not been able to satisfy myself that epithelioma ever commences as a subcutaneous or submucous infiltration, properly so called. It may originate in a follicle, or cyst, with external opening, but even this is comparatively rare. Mr. Paget certainly gives three cases in which he believes it to have in the other a fissure, from which the deeper deposits might readily be believed to have taken origin; and the third case is too exceptional to be taken as sufficient grounds for speaking of epithelioma as being originally an infiltration. I have seen epithelioma of the tongue extend rapidly from a small ulcer deep into the substance of the organ, and produce in a short time a mass of infiltration out of all proportion to the ulcer which formed its starting-point; so that the mere fact of disproportion between an ulcer or fissure and underlying masses of infiltration is no ground for assuming the latter to be the original manifestation of diseased action.

Virchow, for whose statements and views I have the most profound respect, mentions one case in which he has known epithelioma to originate in the substance of the tibia; it appeared in this case only on the fracture of the bone, and subsequently made its way to external parts. It is impossible to deny such an occurrence, but it must be of remarkable rarity; nor can I venture on an explanation of it. The action of epithelioma on bone is, as far as my observations go, simply ulcerative; the pressure of the epithelial masses wears away the bone, eroding it into small cavities, and not separating its layers or breaking it up, as true cancer does. In the most extreme case which I have seen, the bone of the lower jaw was completely perforated by an epithelial tumour originating on its periosteum; but even in this case the bone was eaten through by the pressure of the tumour, and the margins of the aperture were not infiltrated; the bone was slightly softened by inflammation, but free from all evidence of cellular infiltration. I have seen cases in which a wart on the skin, advancing by slow degrees through the stages of ulceration and infiltration, destroyed large portions of skin and muscle, and by pressure caused absorption of two thirds of the tibia; yet in this case the texture of the bone which remained was sound, and perfectly free from the slightest infiltration.

The locality of origin may modify the steps or stages of epithelioma, so that one or both of its earlier phases may be rapidly passed through; but from whatever structure, whether natural or morbid, it takes origin, it presents itself to the surgeon under one of three stages:

1. Simple hypertrophy.
2. Hypertrophy with ulceration.
3. Hypertrophy with infiltration.

1. The stage of simple hypertrophy may be coeval with life. Warts which are composed of several hypertrophied papillæ, with excess of dried epidermic scales, may be almost congenital, and may remain for years unaltered, or merely growing fitfully, and exercising no influence on neighbouring parts. A single cutaneous papilla may become hypertrophied to an immense extent, forming with its still adherent epidermis a horn of considerable size. These are sometimes the slow growth of many years, yet they may vary in their rate of growth. I have seen one increase an inch in length within six weeks after receiving a blow, although it had remained inactive for many previous years. These horns springing from solitary papillæ seldom advance beyond the simple stage of hypertrophy; the removal of the horny covering and the steady application of ice to the papilla will cause their disappearance. Cutaneous nævi, which have been quiescent for a time (their vascular elements predominating), may become hardened and horny, and may lose by degrees their primary aspect of vascular tumour in a development of

for years as a genuine fibro-mucous wart, and yet suddenly take on an active state of growth.

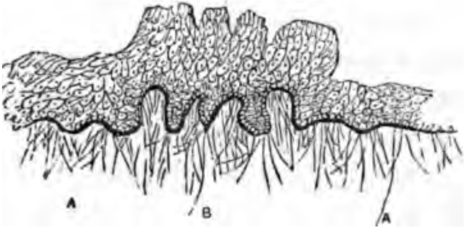
The three stages of epithelioma are best illustrated by a dissection of a cutaneous wart, which passes on from the simple stage of hypertrophy into those of ulceration and infiltration.

In the healthy integument the dermis is thrown into wavy papillæ, covered with a layer of epidermis; the latter follows the indentations of the papillæ, though the hollows and eminences are less deeply marked on its surface. It is composed of successive layers of cells formed by the superficial cells of the dermis. These cells, when first secreted, are very small, mere nuclei; as each is pushed forward by a freshly formed cell, it gradually enlarges; and by the time it arrives about two thirds of the way towards the surface, it arrives at its full development. It now begins to be subject to atmospheric influences, ceases to absorb fluid from the blood-vessels of the dermis, and, drying, becomes flattened at last into a scale. As it takes more room in this shape, it tilts a little obliquely on its edge. Finally, it is removed by surface-friction. In this way a constant succession of fresh cells is kept up, to be as constantly destroyed when they reach the surface and have done their work. The line which a series of cells takes in its progress from the point of formation to the point of destruction is influenced by two forces; and, by the ordinary mechanical law, it lies in the direction of the resultant of these two forces. The forces are the formative force of the cells of dermis, and the desiccating power of the atmosphere. The resultant of these two forces may be taken, for all practical purposes, to be a line at right angles with the surface of the papillæ in healthy integument.* Owing to the oblique setting of

* The line of progression is

the papillæ, there is practically no crowding of the cells upon one another, and no distortion of the lines of cells; all pass regularly on from the points where they first spring into life, to the surface, where they perish. We must acknowledge their course to be guided by laws sufficiently plain and simple. Now, in the simple wart we have a few cutaneous papillæ, enlarged in length and breadth, supplied with nutrient material, and secreting epidermic cells with great activity. These come forward to the surface, dry up, and are rubbed off by friction as on the rest of the skin. This is the stage of *simple hypertrophy*, which I have mentioned above. This condition may continue permanently; it may disappear, or it may be exchanged at any time for the *second stage of hypertrophy with ulceration.* To the consideration of this change we shall now pass on.

FIG. 20.



A, A, Represent healthy papillæ, covered with layers of epidermic cells; B represents the hypertrophied papillæ, with the cells somewhat crowded and compressed, and dry and flat towards the apex.

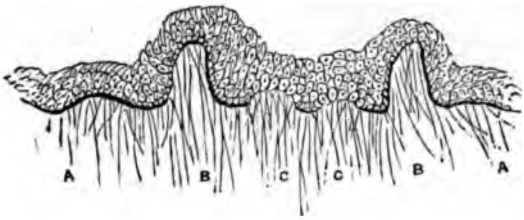
2. Ulceration, or molecular death without repair, is brought about in any tissue of the body either by inflammatory action or by continued pressure. In the one case a mechanical, in the other a vital, cause produces the result.

the papillæ, and at the centre of the sulcus between two papillæ: in other

In the one case there is no room for new material to be laid down, in the other inflammation has destroyed the material which ought to be laid down. The ulceration in connection with the degeneration of warts is of the mechanical type at first, and is due to the pressure of masses of epithelial cells upon the surface of neighbouring papillæ. These cells accumulate more rapidly than surface-friction can remove them; they must find room; so they first push on, and crowd one another. Their regular passage to the surface is interfered with; they are turned out of their straight course towards the surface; hence they do not come under atmospheric influence; they remain moist, and grow to their full size while still deep. The cells which belong to one papilla will accumulate in this way until it and they take the shape of a button-mushroom. All the papillæ may have this tendency; but as it is evident that all will not have room to do so, we find that those in the centre of the wart, being pressed on from all sides, give up the struggle; in fact, they are overtopped by the mushroom-tops of those round them, and are mechanically prevented from forming new cells. The pressure increases, and the substance of the papilla itself recedes before it, and is absorbed, or, in reality, dies, and is not renewed. Thus, by the mechanical pressure of masses of cells growing from hypertrophied papillæ, the second stage of warty growths is initiated.

This condition can be tracked by the naked eye, or, at any rate, with the aid of a pocket-lens, in a section of any cutaneous epithelioma. It is, in fact, the ordinary condition of all epithelial ulcers, as far as their surface is considered. The floor of such ulcers is composed of vascular papillæ, often a line in diameter, but stunted in height; while all those that surround the margin of the ulcer are longer, somewhat thinner, and topped with exuberant masses of epithelial cells. If the ulcer is extensive, we shall find several islands of this latter class of papillæ scattered over the surface; and, wherever they spring up, they will be found to press upon, and ulcerate, and flatten down their neighbours. These appearances are common to all epithelial ulcers, however or wherever originating; but they are best marked and most easily studied on those of the cutaneous surface. They constitute what I have ventured to term the second stage of epithelioma, and of the degeneration of warts and kindred growths—namely, hypertrophy with ulceration.

Fig. 21.

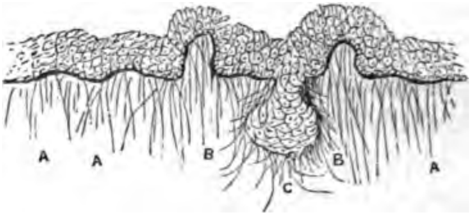


A Represents healthy papillæ; B, hypertrophied papillæ; C, the remains of papillæ compressed and absorbed by the accumulating masses of cells which spring from the neighbouring papillæ.

3. If we continue our dissection of such ulcers, we shall find that it is easy to separate the papillæ from one another at their bases; and that such separation may here and there be carried to the depth of a line or two before it gives rise to bleeding. This prepares us to comprehend the third stage of epithelioma, and of the degeneration of the wart, namely, *hypertrophy with infiltration.* In this third and final stage we have enlarged papillæ, topped with masses of cells, which not only press on and ulcerate the papillæ beside them, but

have found this infiltrating process to originate in two ways: the first and simpler is where a papilla, ever continuing to secrete cells, pushes them on into a crevice between two papillæ; turning downwards, the cells push on until they split the papillæ from one another, and into the angle thus made they are pushed on by the pressure of those behind them; and so they continue advancing between the fibres of the dermis, making way by thrusting them aside until they get into the subcutaneous tissue. In such cases the infiltrating mass is distinct and separable from the parts between which it has insinuated itself. The constant pressure on the cells which form its front or advancing layer flattens them into a sort of false cyst of extreme delicacy. This false cyst is an object of much beauty under the microscope, composed of delicate epithelial scales, arranged in an imbricated manner with extreme regularity, like scales on a fish's back. A section of the little round bodies which are found between the muscles in epithelioma of the lip will show what I mean; or it may be observed better where masses of epithelioma are lying upon bone, if such a specimen can be had. The former are the

FIG. 22.



A Again represents healthy papillæ; B, those which are hypertrophied; and C is a small group of cells which have forced their way into the interstices of the fibres of the integument, and are beginning the work of infiltration.

the earlier students of epithelial growths; viewed in the light of the above description, they resolve themselves into very simple affairs.

The second way in which infiltration occurs is more frequently found in epithelioma of the tongue and other mucous surfaces. It is analogous to the infiltrating processes of cancer. The epithelial cell pushes down between the separated papillæ, and, arriving there, it irritates their vessels, and produces an interstitial effusion of lymph. In this lymph the epithelial cells develop fresh nuclei and cells, similar to themselves, and become a fresh centre of irritation; and the disease advances rapidly by fresh development of cells in the plastic effusion which fills the interstices of the fibrous or muscular tissues attacked.

I have said that epithelioma of mucous surfaces in general advances after this infiltrating fashion; there is a reason for its doing so in the greater vitality of the epithelial cells in the normal state of these parts. They are, from first to last, scarcely influenced by the atmosphere, and run through their whole progress in a state of moisture, absorbing fluid from the blood-vessels, and, finally, bursting when their walls are no longer capable of distension. In this way we account for their more active vitality and more rapid growth in times of health, and for their greater power of destruction when disease sets in. There is another reason in the structure of the parts invaded. If any one carefully examines an epithelioma on the border-ground between skin and mucous membrane, they will see that destruction has advanced much more rapidly from the mucous portion.

I had a case where the ulcerative process had eaten through the thickness of the cheek, and the masses of epithelioma were beginning to project through the skin, while a contemimpression. Now, here it was plain that this discrepancy of result could only be accounted for by local causes. I have given one above in the nature of the covering cells; the other is the difference in the tegumentary membrane itself. The softness and vascularity of the mucous membrane, the delicacy of its fibres, the ease with which they are split, are sufficient to account for its greater susceptibility to ulcerative and infiltrating processes; so that when once the disease is set up by any irritating cause, it is no wonder if it advances rapidly. As a corroboration of this view, I may mention that infiltration is always rapid in the interstices of muscular fibre; that it is still more rapid in the interstices of adipo-cellular tissue; that it is always checked by fascia in proportion to the density of the latter; and though, after a time, it overcomes the fascia, and causes its absorption, it seldom infiltrates either it or tendon. Further, it is, as might be supposed, held at bay by bone, until, by the pressure of the accumulating masses, the latter is eaten away, as would be done by an aneurism; and, finally, I have seen it completely prevented from advancing by the dense contractile tissue of the cicatrix of a burn.

It will be seen that I have apparently departed from the consideration of the degeneration of warts, and that these latter remarks apply generally to epithelial disease, whether springing from warty growths or not. This is true, but it is in part unavoidable; for the second and third stages are alike, no matter in what form the disease commences, whether as wart or epulis, fissure of the lip, or fungating excrescence. The commencement, too, of the degeneration of all these and of nævi is referable to one formula—hypertrophy of the tegumentary papillæ, with excessive formation of cuticle or epithelium, followed by ulceration of the papillæ from pressure of the superabundant cells.—How often have we [illegible] and horny line of closely adherent cuticle along the margin of the lip, fissured, perhaps, in one or two points, and so slow to advance that surgical interference may not be called for till years have passed. And yet, if a portion of this hard cuticle is removed, or falls off at the fissured part as a scab, we are sure to find the surface of the dermis beneath, formed of enlarged and ulcerated papillæ. And so a wart may remain for years, scarcely, if at all, altered; and suddenly, after a blow, rapid degeneration begins; or a mole, which has been level, or nearly so, with the surrounding skin, begins to expand, and, after a time, to ulcerate; or a nævus begins to lose its great predominance of vascular tissue by increasing hypertrophy of its integument; in all these cases there is a tendency to change into the state of wart before the ulcerative stage sets in.

Any part of the skin may be the seat of epithelioma. Probably it is found more frequently on the leg than elsewhere upon the purely cutaneous envelope. Marjolin has given his name to the warty ulcer which is common and incurable upon the lower extremity. Here it acquires slowly, and after many years, a volume which no treatment can keep in bounds, and which amputation alone can check. All are familiar with the warty elevations, the mushroom-like margins, the irregularly excavated floor, the foul and fetid discharge, and the occasional hæmorrhage, which characterise this ulcer. Its origin may be either as or from a common wart, or, according to Mr. Cæsar Hawkins, from a cicatrix. I have seen it arise from the cicatrix of a scald, a blister, or a cut, from a mole, from a wart, and from a simple excoriation where two moist surfaces lay in contact, as in the groin. In the ninth volume of the 'Dublin Quarterly Journal,' an able paper by Dr. Robert Smith gives a resumé of others. Exhibiting slight differences, according to its seat and cause, the warty or epithelial ulcer is essentially the same wherever it occurs, and exhibits wonderfully little variation upon whatever part of the skin it arises. The following cases are among the most remarkable in my notebook.

Case of epithelial wart on the verge of ulceration rapidly cured by bismuth.—A man was admitted into the Meath Hospital with a warty growth in his groin; it extended along the groove which marks the position of Poupart's ligament. Its length was about three inches, its breadth in no place more than half an inch. It was composed of innumerable papillæ, from two to three lines in length, in some places adherent to one another, in others, and the more numerous, separate down to their bases. A considerable discharge of ichorous material kept the warty growth and neighbouring parts always moist, and seemed to be not only a result of the diseased condition, but also an efficient cause of its extension. In the course of a few days the wart grew at least an inch in extent, and the discharge became so copious and offensive as to lead some of the observers to think that ulceration had set in. I was not satisfied of this, and it was determined by Mr. Smyly, under whose care the man was, to try some astringent application prior to resorting to the knife. The wart was daily dressed with an ointment of bismuth, and in the course of three weeks it had completely disappeared.

The skin of the groin was smooth; red at first, it soon lost even this appearance, and became perfectly similar in texture and colour to the opposite side.

The value of astringents is well exemplified in this case. They may be applied either in the form of ointment or of toes, and which is known by the name of soft corn, the powder of bismuth or of French chalk will quickly dry up the growth, and remove the unpleasantness which it produces. In such cases a large pinch of the powder should be placed between the toes twice, or oftener, in the day. In other parts of the body, where a powder would not adhere in sufficient quantity, the ointment will be found the most convenient form.

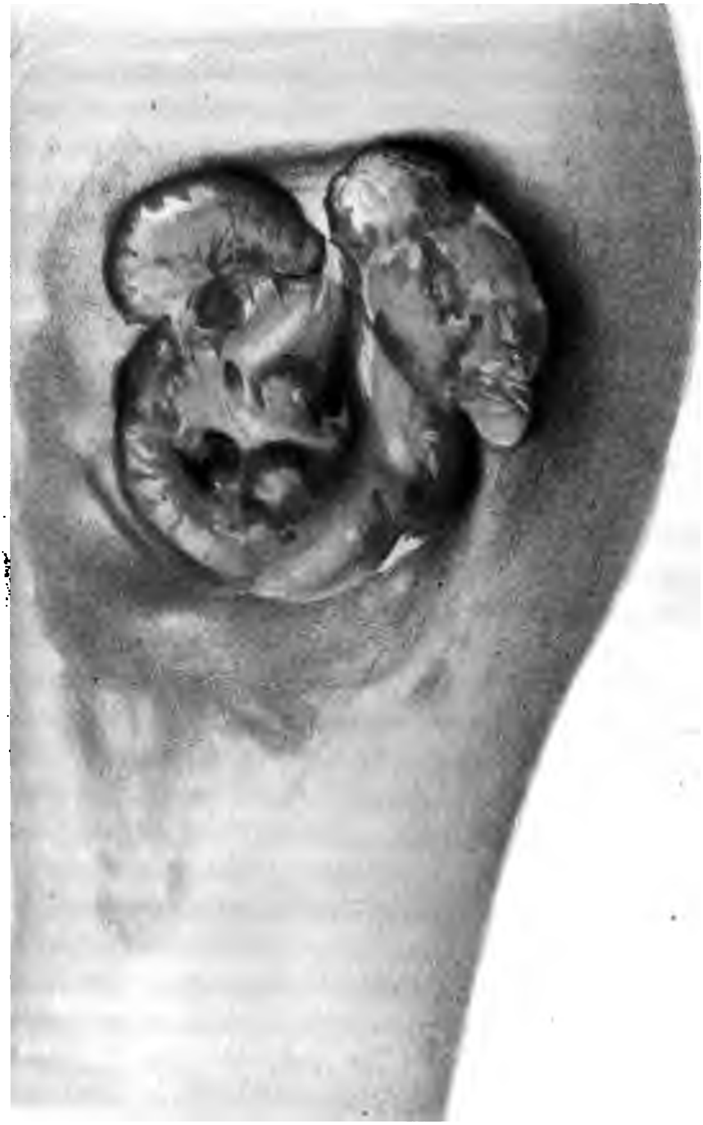
Rapidly growing epithelioma of the leg removed; no return after five years (Case taken by Mr. A. W. Foot).—John Kelly, aged seventy-six, a gardener, admitted into the Meath Hospital, December 12th, 1859. Five or six weeks before admission a pimple appeared, an inch and a half above the internal malleolus of the left leg; it rapidly increased in height and breadth. It was not attended with acute pain or sensibility; any occasional pain was of a gnawing, nipping character. About a week before admission it ulcerated in the centre of the elevated disc. On admission it was found to be about the size of a shilling, with a purple margin, evenly raised, fully a quarter of an inch all round from the integuments, the surface of the disc level, except at the centre, which was depressed; from this spot some cheesy, granular matter could be squeezed, and from the bottom of the small ulcer, which then came into view, a stalk-like group of fibrous papillæ could be seen sprouting up. The integument all round was red and inflamed. Leeches were applied, four at a time, on the 14th and 16th of December, with the effect of removing the redness, but with no diminution of the epithelial growth, or change in its purple colour. On the 21st the part was benumbed by ice, and removed by Mr. C wound, and was seen, but not injured. Nevertheless phlebitis came on, and for a week gave much trouble. The wound meantime remained dry and dark coloured, the vein lying in the bottom of it like a white cord; little discharge came from it, and that was remarkably offensive. The ankle and limb were much swollen. As soon as suppuration came on freely these unpleasant symptoms subsided, and the wound healed by strapping in six weeks; a permanent depression marked the site of the disease. He has been seen or heard of constantly, and remains quite free from relapse to this day.

Had this case occurred to me lately I should have treated it with ice, and have endeavoured to avoid the use of the knife.

Some are of opinion that epithelioma may be now and then propagated by contact. Copland and Mayo give cases in which cancer of the penis (epithelioma) has appeared in men whose wives were affected with similar disease of the uterus. Whether these are simply coincidences, or cases in which a tight prepuce and foul secretions have combined with inattention to cleanliness to produce epithelial disease, or, on the other hand, cases of direct contagion, may be hard to determine. Direct inoculation of cancerous or epithelial matter will not produce either disease in the vast majority of instances; yet it is not to be denied that actual contact will propagate warty growths in the same individual, and that direct inoculation is not unattended with danger. I have removed epithelial masses from the scrotum and thighs of a sweep, those in the latter situation being plainly secondary, not having arisen until the scrotal disease had necessitated rest in hospital, and ablutions which removed the soot from his limbs.

The following case, however, leaves no doubt of the possibility of direct infection.

PLATE



Rapidly growing wart cured by ice.—Mr. G—, a very intelligent student, was removing a large soft wart from the lip of a lamb, and in doing so pricked himself on the back of the hand, over the knuckle of the middle finger. In a few days a wart sprang up in this spot and grew rapidly. In three weeks it reached the size of a silver fourpenny piece; it was elevated, red, soft, and composed of very large papillæ, which were split at their bases, so as to bleed occasionally. There was some watery discharge from it, and it felt hot and painful. Nitrate of silver had been freely applied, with the effect of increasing the irritation. I ordered ice to be kept to it persistently, and in the course of a week it dried, shrank up, and finally disappeared, leaving for a few weeks a red mark, which by degrees faded away.

Epithelioma attacking the integument of the tibia, necessitating amputation.—Patrick Ward, aged sixty-three, a farmer, from County Galway, for two years the subject of a sore leg, came into the Meath Hospital, under my care, in August, 1858. The disease began two years before as a wart on inner side of right leg, about its centre. This became inflamed and irritated by friction of clothes; it bled occasionally, and gave pain and annoyance to the man. A regular warty ulcer was established in about six months; this was touched with various caustics, and on one occasion the actual cautery was applied severely, so as to destroy the greater part of the growth. Still, after every application, it again sprang up with greater energy. It is now (August, 1858) four inches in diameter, of circular form, with the addition of two outgrowing, irregular, mushroom-like projections (Plate X). The edges of the ulcer are hard and thick, considerably elevated above the level of the sound parts, from which they seem to rise abruptly.

cavated and covered with greenish pus, in other parts raised in irregular nodules of a general livid hue, tipped with a more fiery red. The ulcerated surface of the margins is distinctly warty and hypertrophic, the lines of epithelial infiltrations being perfectly visible to the unassisted eye. The probe passed into the deeper parts of the ulcer touches bone upon a little pressure being used. The bone seems bare and irregular, and devoid of periosteum; the impression given is that the probe passes into a deep, irregular cavity, but scarcely so deep as the medullary canal. Round the margin of the ulcer, especially along its lower border, there is much dusky redness, extending downwards to within an inch or two of the ankle-joint, and close to the ulcer a few firm nodules can be found, still subcutaneous, but advancing rapidly to the surface, and threatening to ulcerate the skin. The margin of the ulcer is incorporated with the subjacent fascia and soft parts, and the muscles of the calf seem much implicated. From this extensive infiltration of the limb, and from the fact of a considerable thickness of the bone being implicated, any expectation of removal of the disease by a mere local operation was evidently futile, and amputation was proposed and acceded to. It was done by the flap method, the flap being purposely made small. It healed with great rapidity, and the disease never returned. The muscles of the calf were found pale and far advanced in fatty degeneration, but presented no evidence of epithelial infiltration at the site of operation.

Examination of the tumour.—There were the usual appearances of epithelioma about the margins and floor of the ulcer, and in the soft parts all round. The appearance of the diseased masses on the bone and in contact with the cicatrix of the bone, and the alterations in the bone itself the extent of about the third of its diameter. There was no periosteum on the eroded parts, no pus, and no decomposed or broken-up bone-tissue; the two structures, bone and epithelioma, were in direct contact, the projecting outline of the one filling up and accurately fitting into the hollows of the other. It was manifest, as far as the bone was concerned, that absorption by pressure was the means of its removal; the cells of the epithelial growth were grouped in masses of various size, and under the microscope were most beautiful objects. They were packed tightly together in papillary masses, the surface-cells lying so closely together as to give them the appearance of a membrane enclosing the remainder; not the remotest trace of infiltration of the bone could be found in any point; the bone and epithelioma were separated with little effort, their adhesion being merely mechanical. In this respect the difference of the growth from cancer was most remarkable, bone being readily infiltrated by the latter, its layers widely separated at first, and subsequently softened and destroyed. The man made a rapid recovery, and is still alive and well.

Arsenical applications to epithelial ulcers are often effectual, but are by no means free from serious danger. Not only will the sound parts round the ulcer absorb the mineral in sometimes poisonous amount, but, even if the care of the surgeon succeed in limiting its application to the diseased surface, it is impossible to regulate the depth of its action; so that it may happen to eat through the epithelial mass, and come in contact with healthy tissue before the surgeon is aware of it, when the process of absorption will commence, and the poison will begin to exercise a deleterious influence on the health of the patient. It is, besides, peculiarly

Royal Free and Cancer Hospitals, however, speaks highly of it, at the same time that he recommends caution in its application, for the reasons given above. He seems to apply it in the form of mucilage, as well as I can collect, twice a day, until the tumour or growth sloughs away. This, from the cases he gives, takes from two to six weeks. His formula for the arsenical mucilage is as follows:—Arsenious acid, gum arabic, of each one ounce, mixed with five drachms of water. The part affected to be painted over with the mucilage night and morning, never exceeding one superficial inch. As the part becomes deadened, it must be allowed to slough off, aided by warm poultices. When all the diseased structure is got rid of, a carrot poultice by night and black wash by day perfect the healing process.

Dr. Marsden gives internally bicarbonate of soda in fifteen grain doses, night and morning. In leuco-phlegmatic persons he gives the soda at night only, and in the morning and mid-day a draught composed of one drop of hydrochloric acid, and one drachm and a half of compound tincture of bark, to an ounce and a half of water. Full diet, with malt, he considers absolutely necessary, and wine where the patients are habituated to it; but spirits and tobacco he discountenances.

Mr. John Gay, Surgeon to the Great Northern Hospital, gives the following testimony to the value of the solution of pernitrate of mercury in epithelial ulcers. He says:—"This preparation is, I believe, a concentrated solution of the red oxide of mercury in hot nitric acid, and is said by chemists to have a very strong affinity to ammonia. It is on this account, perhaps, that it exerts so powerful an influence over some of those abnormal tissues of the body which are rich in the elements of that alkali, but comparatively poor in respect of vital power. To this influence I will now especially direct attention, but without claiming any originality either in the practice of employing it or in the observations which my experience of its power has enabled me to make. I have now tried it in a considerable number of cases of epithelial cancer, and can affirm that so far as this affection is curable by its perfect local eradication, the solution of the pernitrate of mercury can effect a cure."

He then details a case of epithelioma of the lower lip in the stage of ulceration and hypertrophy, without glandular contamination. "The disease implicated the margin, and had attained at one point to the size of a walnut. I applied the solution of the pernitrate abundantly over the whole of the ulcerated surface, not at all careful to keep the application within its limits. It gave great pain, but only for an hour or two. It had the effect of destroying a layer of the diseased growth, which came away as a slough on the third day. The remedy was applied, or rather the surface was soaked with the solution, twice a week for a period of six weeks, with the same result after each application. As it destroyed layer by layer of the cancer, so the wound deepened, but at the same time the adjoining tissues closed in by granulation from every point of healthy tissue, as this was stealthily reclaimed from the invasion of the cancerous growth, until at length, even under the continued application of the agent, the whole surface threw out healthy granulations, and the wound healed with scarcely a mark, and without loss of healthy structure. The obvious value of this agent lies in its being fatal to the disease, and powerless over the healthy tissues. The one it destroys, while it spares the other; and not only so, but it appears to quicken the healing energies of the latter; for the repairing process keeps pace with the speed with which the former comes under its exterminating influence: so that no

The examples of dark moles becoming endowed with active growing powers are numerous. There are two totally distinct changes to which they are subject:—first, genuine cancerous degeneration, or deposit of cancer within their substance—this is subcutaneous and generally melanotic; the other, and more common, is epithelial degeneration of their surface. This may be slow or rapid, it may appear early in life, or it may be deferred to a very advanced age. I have been called upon to remove such hypertrophied moles from young girls of eighteen and from old ladies close on eighty. An old lady had for years a mole the size of a sixpence on the inside of her left heel, which began to grow rapidly when she was seventy-eight with slight enlargement of the inguinal glands. Mr. Smyly and I removed it in 1859 or 1860, by ligature, as she had a horror of the knife; it never returned locally, but she has now a large irregular mass occupying the groin, and composed of lymphatic glands in a highly inflamed and infiltrated condition. The spread of the disease upwards, along the chain of lumbar glands, is more than probable. The poor old lady does not suffer much, owing to the diminished sensibility of advanced years. She had concealed the tumour in the groin as long as possible, and I was not made aware of its existence until very lately. Belladonna ointment and plaster gives great relief to her, and as the progress of the glandular enlargement is slow, it is to be hoped that at her age her sufferings from this cause may not be very great. She is active and cheerful, and to the eye presents no signs of the presence of malignant disease. I have, however, seen cachexia as marked from advanced epithelial disease as from genuine cancer. In fact, cachexia is a sign of wasted strength and exhausting pain, rather than of any specific form of disease.

lioma which are deserving of notice, but they will readily suggest themselves to the practical surgeon, and a further exemplification of them would be tedious.

The most frequent site of epithelioma is on the border ground, between skin and mucous membrane. Perhaps it would be more accurate to say, upon the mucous membrane where it joins the skin; for it is upon the mucous surface, rather than the cutaneous, that the excoriation, fissure, or hypertrophied papilla is first observed. Here the condition of wart is less observable than on pure skin or soft and moist mucous membrane; still by attentive observation the hypertrophied papillæ will always be found as the starting-point of disease. The progress into the second stage, ulceration, may be just as slow as on the skin, although from the soft texture, and the constant moisture of mucous membrane, the progress of the disease to ulceration is as a rule both more rapid and more certain. Papillary hypertrophies of pure skin may generally be let alone as long as they remain in that condition, while constant supervision is required for such as spring from mucous surfaces, lest they should slip on unnoticed into ulceration and infiltration of the deeper tissues.

The very commonest seat of epithelioma is the margin of the lower lip. Here it is first noticed either as an excoriation or fissure with thickened edges, running across the lip from before backwards, or as a hypertrophy of a line of papillæ along the margin of the mucous membrane close up to the skin. In the latter case it is extremely chronic; it will extend over much of the margin of the lip, running in a thin line along the point of junction of the red and white integument. The hypertrophied papillæ are covered by a horny layer of dry and very adherent epidermis, and when this is scraped or peeled off, they can be easily seen with not so that epithelioma which shows first as an excoriation, and runs fast into a fissure or crack. It is both more common and more rapid in its progress. Commencing on an excoriated surface, it quickly passes into the second stage, that of hypertrophy with ulceration. Gradually the papillæ are absorbed by pressure of the ever-growing masses of epithelial cells: this gives to the centre of the growth an ulcerated appearance, while the papillæ round the margin of the ulcer are enlarged and more or less inflamed. Gradually, too, the warty-looking mass enlarges in circumference and in prominence; its centre discharges some offensive pus and softened epidermis: but though its centre is softer and more pulpy than the margins, it generally remains higher than they are, so as to be somewhat button-shaped. The growth projects a good deal, altering the outline of the lip, which is manifestly enlarged. If carefully inspected, much of the proper structures of the lip will be seen to be pushed aside by the hypertrophic mass which springs up from among them. In the matter of operation this is an important and valuable fact; for a large mass may be freely removed, with very trifling subsequent deformity.

The exact passage of the disease into its third stage, that of infiltration, is not easy to be defined. There are, however, a few signs which careful observation will generally reveal, by which the early periods of this stage may be recognised; and as cases which have advanced into the third stage present difficulties for the surgeon in regard to the advisability of operation, these demand an anxious attention.

The earliest signs of infiltration are to be sought in the mucous lining of the lip. If the finger be passed along this surface, some hard rough points will be found, corresponding to the small mucous glands which are abundant of infiltrations, which give each little gland a raised and flattened outline; the centre, where the little duct comes out, being a little depressed. Very soon these coalesce, the infiltration spreading in the interspaces between them. The skin, meanwhile, is the seat of a similar process, but from its greater density of structure, its lesser vascularity, and the natural dryness of its epidermis, it is more slowly infected. I have seen epithelioma of the mucous membrane of the cheek eat its way right through the cheek, destroying a surface of mucous membrane the size of a florin, before it perforated the skin. Upon the lip these sub-cutaneous infiltrations present at first the appearance of a small livid tubercle below the original epithelial growth, and apparently separated from it by a minute margin of unaltered skin. As they enlarge they become umbilicated, depressed in the centre, where they soften, and from whence some trifling offensive weeping takes place. As soon as the centre has thus opened, the tubercle loses much of its livid red colour, and becomes paler. Other similar tubercles soon appear, and these rapidly coalesce with the first and with each other, and run into one with the original mass. Inspection of these tubercles in their various stages will show that they are merely the outward manifestations of a much more extensive and deeply-seated infiltration: what appears on the surface is by no means the largest or most important part of the diseased mass. I am disposed to look upon the mucous membrane as affording us the earliest guide to the period of infiltration.

The serious complication of glandular poisoning rapidly follows the initiation of the third stage. Here, however, there is also some warning, for irritative enlargement of the glands cedes their known by the absence of any alteration of outline in the affected gland; it retains its oval flattened form, even when enlarged to many times its natural size, so long as there is no deposit of infiltrated epithelium in its substance. As soon as the stage of mere irritation is exchanged for one of infiltration, the outline of the gland changes; it becomes first globular, then irregular and nodulated. A hardened line may or may not be felt, connecting it with the primary disease, marking the track of the lymphatic vessels. Should the disease have been allowed to reach this stage, to interfere is unjustifiable, as its entire removal is now impossible. Even when the glands are removed extensively it is sure to return in the cicatrix in the form of red tubercles, which quickly ulcerate, and, spreading through the entire wound, both superficial and deep, open it up into an unsightly gap, which no effort of the surgeon can avail to close. Where such an unhappy state of things occurs, the actual cautery, applied with the utmost freedom under chloroform, is the most effectual means for retarding the destructive progress of the disease; but it must be used at a white heat, and most unsparingly, so as to destroy as much morbid material as possible and some sound tissue. The cicatrix of a burn forms, in fact, the most effectual barrier to epithelial infiltration, much more so than even the densest bone. No potential caustic has this power; the most that any of them do is to kill more or less of the granulating masses of epithelioma, but without causing the formation of any tissue which will have the power of even temporarily checking the abnormal deposit. The very irritation which they set up is destructive, as it excites a still greater activity in the disease. Where the actual cautery cannot be applied or will not be borne, I have found the strong perchloride of iron valuable, both as a styptic and for the destruction of masses of epithelium. These accumulate, putrefy, and, mixing with the ordinary discharges of the ulcer, cause much distress from their fetor. If nothing else can be done, the ulcer can be kept clean by daily applications of the perchloride,—at first of full strength, and afterwards, as the removal of the epithelium from the surface leaves it more sensitive, largely diluted.

In condemning interference with the lip when the glands are affected, I must not be understood as rejecting operation when there is mere irritation, even to a considerable extent. Over and over again I have seen glands that before operation were irritated to the verge of suppuration, disappear when the source of their irritation was removed; but it is not to be concealed that it is often of the greatest nicety to determine whether the stage of infiltration has arrived. Delicacy of touch, and a nice appreciation of the smaller signs such as the poisoning of the mucous follicles and little glands of the lip, may help us in some cases to a positive conclusion; but the negative is always hard to prove; and although where there is a doubt we should give our patient the benefit of it, yet it will always be in fear and trembling. In such cases, leeches to the gland may be of use, two being applied every night until there is a decided diminution of the irritation and enlargement; a strong ointment of iodide of lead may be applied subsequently once or twice. Much irritation of the skin should be avoided, as tending to do more harm than good.

Various causes have been assigned for epithelioma of the lip. The tendency to chapping of the lips and to warty growths may be passed over, as vital causes over which art can exercise little control. Foremost among exciting causes is the pressure of a clay pipe over one spot, with the occasional addition of excessive resting on a few inflamed papillæ. Cigar smokers are liable, but in a much less degree, to a similar alteration of structure. Possibly the empyreumatic oil of tobacco assists in its production. Packers and fishermen are said to produce the disease by the pressure of the hard twine or cord which they use in their trades. Holding the twine in their teeth, they have it constantly bearing on one spot of the lip, and so set up a local irritation there. Want of attention to the teeth is a very common source of irritation. The collection of masses of tartar produces a foul condition of the mucous membrane of the gums and lips, which brings on aphthous ulceration; and I have seen it too frequently associated with epithelioma to doubt a connection, which *à priori* reasoning would render probable. Rough and jagged teeth are less a cause of the disease in the lips than in the tongue, yet they are not to be neglected in this enumeration. Some surgeons are disposed to think lightly of these exciting causes, because all persons are not affected by them. They might as wisely deny the exciting causes of gout or fever because all who are exposed to them do not contract these diseases, or because in all who contract these diseases the exciting cause cannot be traced. These causes, moreover, have a practical bearing on the prognosis; for on them, in a measure, depends the exact site of the disease: and, *ceteris paribus*, the danger varies according to the situation.

The most frequent situation of epithelioma in the smoker of pipes is midway between the centre and angle of the lower lip. This is, anatomically, the safest place for the disease. The line of reflexion of the mucous membrane from the lips to the jaw-bone is deeper than in the centre; so that infiltration can go on longer before it reaches the muco-fibrous useless. There seems also to be a greater slowness in the lymphatics to take up the poison from this point of the lip than from any other. Here also is the thinnest part of the lip in most people. Certain it is that cures are more frequent in this situation than either in the centre or angle of the lip.

Where the disease follows after a fissure, it will no doubt depend on the site of the fissure. This is generally the centre of the lip, more rarely the general margin, and most rarely of all the extreme angle. The last is the most dangerous, from the size and number of the lymphatic vessels which run from the angle of the mouth to the glands in the angle of the jaw. Next in order of danger is the centre of the lip, for the anatomical reason already given, namely, the reflexion of the mucous membrane to the alveoli; this is closer to the surface here, and leaves a shorter margin for submucous infiltrations. Least dangerous in all cases, then, is that epithelioma which is seated between the centre and angle of the lip.

As regards epithelioma of the lip, little need be said on the treatment of the first or second stages. The withdrawal of the irritating cause, the softening of the hardened epidermis by weak alkaline lotions or bread poultices, and the application of weak astringent lotions or simple unguents, comprise about all we can or ought to do at first. Caustics or strong astringents should be avoided as too irritating. Many a simple wart or crack has been worried, by the injudicious use of caustic, into something really malignant. When the third stage has set in, the sooner the knife is resorted to the better, as regards ultimate or even present success. I have never seen any good done by caustics, and I have often seen incalculable mis is used in time and all disease removed, provided caustics have not been employed. I have seen the disease completely removed, and a new attack come on in another part of the lip unconnected with the cicatrix of the former operation: but this is essentially different from relapse. There is a kind of lip peculiarly prone to epithelioma. It is the large, full, moist lip with ragged or irregularly-fissured margin. In such a lip I always look out for a return of the disease after an interval, unless the primary operation has been of necessity so extensive as to remove the entire margin.

The extent and form of operation will vary according to the amount of disease. When the infiltration has passed deeply into the lip from one point only, a V-shaped incision is the most orthodox mode of removal. It is better slightly to curve the sides of the incisions, as by this means we can better remove the little tumours without unnecessary destruction of sound parts. As a means of isolating all that is essential to be removed, two pair of slightly curved polypus forceps may be used. The assistant grasps the lip with these, keeping their concave borders towards the diseased portion, and bringing their points in contact below it. The surgeon can then rapidly run the knife down along the edge of one and the other forceps, while the assistant compresses the lip, makes it tense for the knife, and prevents hæmorrhage by their means. In ordinary cases one pin and figure-of-eight suture, with two points of interrupted wire suture, will suffice to bring and keep parts in contact. In cases where much is removed, two pins may be needed. The upper one should be inserted so as to transfix, or at any rate compress, the artery. In cases where a great deal is removed; the quilled suture will be used with advantage. I am in the habit of removing the quills in forty-eight hours, leaving the interrupted sutures undisturbed for a week.

Where epithelial ulceration extends superficially along the margin of the entire lip, it is best to shave off the margin. The resulting lip is not so good as in cases where the V operation is practicable; so that whenever possible the latter should be chosen. But sometimes a shaving operation is required, and if so, it may be done with some regard to symmetry, so that when skin and mucous membrane are brought in contact, a tolerably regular margin may be obtained. Where the entire lip is removed by such an operation, a new one is best formed by Mr. Rynd's method. This can be put in practice, either immediately after the removal of the diseased lip, or, what is better, at a subsequent period. Let me remark here that all operations for restoration of the lower lip have for their primary object the restoration of power to retain the saliva. There is no greater source of distress and irritation (and, indirectly, of relapse) than the constant dribbling of saliva over the newly-healed cicatrix. The following description of Mr. Rynd's operation is taken from his posthumous paper, published in the 'Dublin Medical Quarterly' for August, 1861:—

"Assuming a line falling perpendicularly from each canine tooth to the margin of the jaw-bone as the boundaries of my incision, I passed my knife through the mucous membrane and along the gum from one canine tooth to the other; my next incision, made in the course of the former, separated all the soft parts from the body of the bone as far down as its lower margin, but no further, as I found this gave sufficient freedom to the parts to allow them to be drawn upwards to cover the teeth and meet the upper lip. I drew them with strips of adhesive plaster brought from under the chin, and made to adhere firmly above the zygoma on either side; some more slips [illegible] were made to press steadily, assisted materially in retaining the parts in their new situation. All were secured by a bandage, and the man was sent to his ward with orders not to speak, and to keep his under jaw perfectly at rest; he was fed with eggs and milk, strong broths, arrowroot, gruel, and other food not requiring mastication, during five days; and on the sixth day after operation we found the chin was adherent in its new position, the new lip was firmly up to the upper lip, and its inner surface was nearly healed, except where it pressed against the teeth. This was easily set right by a bit of simple dressing on lint laid between to protect it; and on the fifteenth day from the operation he could eat and drink as formerly, and speak distinctly."

Plate XI, fig. 6, represents the result in this case. It will be seen that the upper lip comes fully in contact with the new lower one. Mr. Rynd continues—

"I have little more to advance in favour of this operation; it is safe and simple, and the proof of its efficiency and usefulness is exemplified in the cases just reported. It is applicable in every instance in which, from disease, accident, or other causes, two thirds, or even a larger portion of the soft parts forming the under lip and chin, are defective. It is only to free the connection of the parts from the body and margin of the jaw-bone, and sufficient substance can be drawn upwards to supply this deficiency. The imaginary lines drawn perpendicularly from the canine teeth to the margin of the jaw comprise between them the parts to be cut, as well as the extent of the incisions; beyond these lines we have the dental holes, with their nerves and vessels, which are avoided by keeping within them; besides, they mark the limit of the ordinary sized lip."

Such is the best method of restoring a lower lip when disease has required the removal of all the free margin and

PLATE XI

Fig 1.

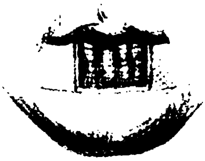


Fig 2

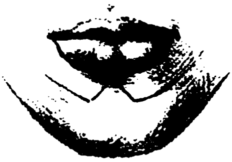


Fig 3.

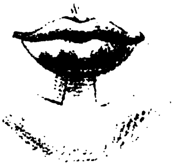


Fig 4.

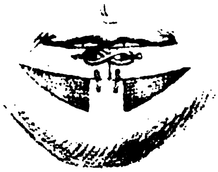


Fig 5

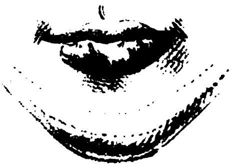


Fig. 6.

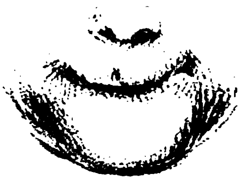


Fig 7

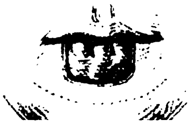
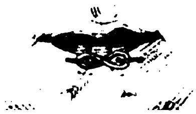


Fig 8.



substance of the original lip. There are many other modes of effecting the same object where the disease has been less extensive. A glance at Plate XI will explain many of these far better than any lengthened description. Fig. 1 is a method I have frequently had to resort to. Having removed a square portion from the centre of the lip, I made incisions, running in a lateral direction, parallel to the free margin, and extending through the thickness of the lip, so as to enable me to bring the portions of the lip, which remained after operation, into contact in the mesial line without undue strain. This gives a very tolerable lip in persons of square chin. Fig. 2 represents Buchanan's method; and figs. 3 and 4 are an improvement I have made upon it. I found that the central pillar, on which the new lip was elevated, gave better support if made square and not angular.

Fig. 5 is intended to show the sub-cutaneous dissection in Rynd's operation; the dotted lines, however, extend too far laterally. Fig. 6 is the result.

Fig. 7 is a combination of Rynd's operation with the one represented in fig. 1. The result is given in fig. 8.

These operations give a fair idea of what is required for the remedy of epithelial disease of the lower lip uncomplicated by infiltrations, the result of caustic applications. Unfortunately, however, we too often meet with cases where arsenical or other plasters have caused great havoc among the tissues, and have left irregular gaps, with extensive dissemination of the disease, in what had otherwise been sound tissue. Examples of this are seen in Plate XII. Taken from photographs, they are not flattering.

The upper figures represent the state of parts in a fine old man from the County Clare. From his lip and chin I had to remove large masses of disease which bordered an irregular

A very small margin of healthy lip remained, upon which, or rather under which, I built up from the chin a substructure which enabled us to show a right good lip. I have photographs of him after the operation, which show that the lithograph does not exaggerate the improvement.

The lower figures show a much worse state of things. This man, brought to me by Mr. St. Lawrence, had also been in the hands of the plaster quacks. The entire lower lip was a mass of disorganisation. With much difficulty I saved about half an inch at the left angle of the mouth. A perpendicular cut through the whole thickness of the lip, and a sweep of the knife to the opposite angle, removed the rest, and left a gap as hopeless-looking as could well be imagined. However, by bringing skin and mucous membrane in contact along the vertical portion of the incision, I prepared a good line of free margin for the second operation of the series. This consisted in carrying an incision parallel to this new line of free margin, and on to the left, parallel to the remaining half inch of original lip, at about two thirds of an inch distance irom it. The flap thus formed was brought across, so that its point lay at the right side of the mouth: stitched here it united, and our second operation was complete. He had now a tolerably useful mouth, but from the drag it was all on one side. However, a third operation made it symmetrical, as seen in figure 3, by simply extending the angle of the mouth towards the left; an incision was carried through the cheek in a curve to correspond with the outline of the other angle, and the mucous membrane and skin of the upper and lower edges of this incision being brought respectively together by several sutures, a new muco-cutaneous margin was formed above and below, and the man's appearance vastly improved. The small fragment of his original lower lip was thus transplanted

PLATE XII

Fig. 1.

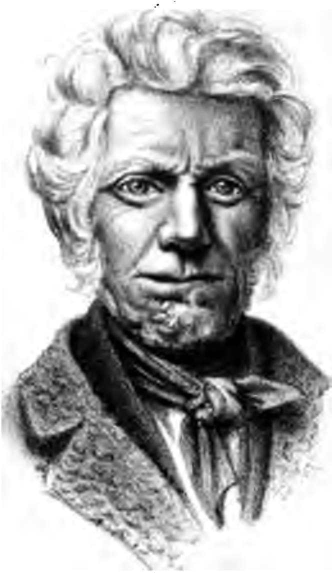


Fig. 2.

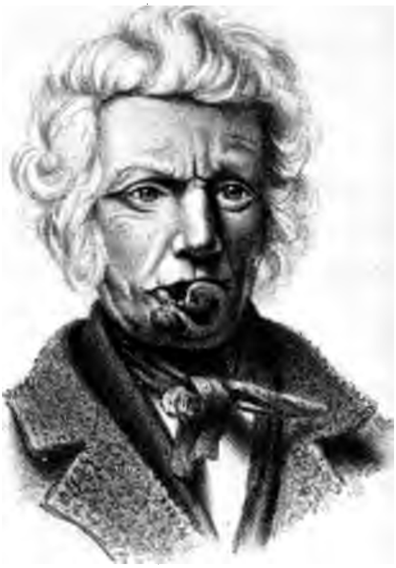


Fig. 3.

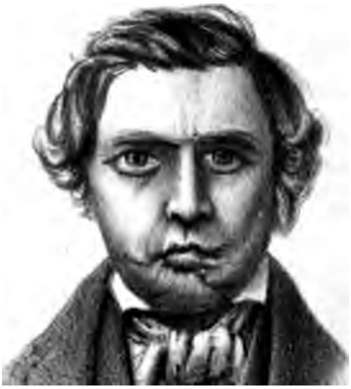
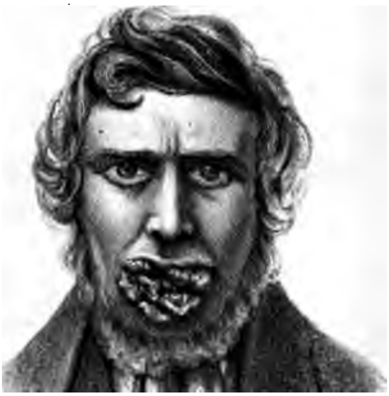


Fig. 4.



from the extreme left angle to the centre of the lip, all the rest of the margin being artificial.

Sometimes the gap to be filled has been of such a size and shape as to require a contribution to be levied, not only from the cheeks and chin, but even from the integument underneath the chin. The side portions may be taken from the cheeks, and Rynd's method of bringing up the somewhat loosely attached pad of integument which forms the prominence of the chin may be adopted to form the central portion. As before stated, Rynd's operation consists in dissecting this portion of skin from its bony attachments, until it can be pushed up into the situation of the lip, and there retained by pins and straps of adhesive plaster until it contracts adhesion in its new bed. I should not hesitate to prolong my dissection downwards in a case requiring it so as to bring up a triangular piece of skin from beneath the chin, as I have done in cases of restoration of eyelids and other parts. To do this, the dissection of the chin is first to be made; two incisions are then to start from the sides of the chin, to meet in a point underneath the chin, after running a course of an inch and a half or two inches; this triangular flap is to be dissected up towards the chin, and quite separated from the subjacent parts, the dissection to be carried up and continued into the wound made on the inside by dissecting the chin from the bone. Considerable freedom of movement will be thus imparted to the flap which it is desired to elevate into the position of the lip; the wound made under the chin by the upward movement of the submental flap can be left to granulate, or its edges can be drawn together by a suture or two, the presence of which acts as a barrier to the return of the flap to its original bed. This combination of Rynd's method with the

In a case operated upon some years ago I resorted to a combination of Rynd's method with that in which the cheeks are made to furnish the lip. The old man was seventy-eight years of age at the time (1853), and is still alive and hearty. He was a fine specimen of a Kildare tenant farmer—tall, erect, well built, and handsome for his years. The disease was considerable, and required removal of at least two thirds of the lip by a square cut, leaving a very small portion at each side near the angle. I made no incision at the angles of the mouth, but I dissected the chin a little and pushed it up; I then brought the small angular portions of the lip, which were left at each side, as far as I could towards the mesial line, and pinned them there. They did not quite meet, but the chin supplemented them, and they in turn were of the greatest assistance in holding up the chin to the place where I wanted it to remain. All healed nicely, and the old man returned with a lip which easily met the upper one, and which effectually retained the saliva during mastication. This is figured in Plate XI, figs. 7 and 8.

The other border regions of skin and mucous membrane are liable to epithelioma in a much lower proportion than the lip. This is manifestly owing to the comparative infrequency of local irritating causes: one of these localities is the prepuce. Persons with a long and tight prepuce are most liable to it. This is easily accounted for by the tendency of such condition to produce excoriations. The natural sebaceous secretion of the part accumulates, and causes some excoriation. The resulting pus mingles with the sebaceous matter, becomes acrid and irritating; warts are engendered, and quickly pass through their stages into active infiltration. The great vascularity of the organ tends to hasten the mischief, and often before the patient is well aware that there is anything of consequence astray, poisoning of the glands in the groin has produced irremediable mischief. No warty growth on the prepuce should be neglected in any man of middle age. Very finely-powdered blue stone, bismuth, or cream of tartar, may cause it to shrivel up; if not, time should not be lost in tampering with it, for early removal alone can be of any avail. Next to the tongue, the penis is the worst situation for epithelioma. As a preventive, it is advisable to slit the prepuce, if it remain tight, in the adult. It is remarkable that epithelioma of the penis is a rapid affection, while genuine cancer of that organ is singularly chronic. Scirrhus attacks the glans and body of the penis, and advances, as a rule, so slowly that many years elapse before any extensive alteration of tissue takes place, or the inguinal glands become poisoned. Epithelioma, on the other hand, commences in the prepuce, which is largely supplied with lymphatics and becomes rapidly infiltrated. Hence the rapidity of glandular poisoning, and the irremediable mischief of delay in operation.

Where amputation of the penis is called for, Hilton's operation, if practicable, is a great improvement on the old plan of amputation by one sweep of the knife. It consists in dividing the corpus spongiosum about a quarter of an inch further forward than the corpora cavernosa. The projecting portion of the corpus spongiosum is to be slit up longitudinally, so as to form two or three flaps, the borders of which are to be attached by suture to the margin of the integument. The advantage of this method is, that the orifice of the urethra is kept patent, and the tendency to its contraction avoided.

The rectum and anus are very often the seats of this disease. Large portions of the rectum have been extirpated removed by Langenbeck, but with what immediate results I am not aware; the ulterior consequences may be easily imagined. It is quite possible that in a very early stage, when the disease is limited to the very orifice or to the lowest inch of the rectum, that extirpation of it might bring about a temporary cure; but in how few cases is the surgeon consulted in time! Generally speaking, the disease has far advanced, the rectum is disorganised for several inches, and masses of epithelial condylomata block up the anus, in whole or in part, before the patient is aware that he has more than common hæmorrhoids. This form of rectal disease is rapid, the scirrho-contracted rectum being, on the other hand, slow in progress. Extension of epithelial disease takes place towards the prostate and bladder in the male, and often into the vagina of the female. The condition thus established is pitiable, from the contents of the bowel escaping control. Frequent hæmorrhage will come on, sometimes spontaneously, by the opening of a large vessel; more frequently from the vessels of the epithelial masses, which bleed freely on the least rough usage. The warty papillæ split, and from the fissures copious bleeding will frequently set in. In these cases matico-leaf may stop the bleeding, but the perchloride of iron in a strong concentrated form is the very best styptic. I had lately a case in consultation with Drs. Nolan and Palmer, of Baggot Street, which showed its value remarkably. The patient, an old officer, consulted us about a trifling surgical malady, and on examining him I found he also had what he called piles. These were epithelial condylomata, very warty, and surrounded by brawny infiltration. The rectum was perfectly impervious to the finger; fluid or semi-fluid fæces passed daily, but with extreme difficulty and only after strong medicines. One day he bled profusely and repeatedly ·hen at stool, and on being sent for I found him weak and low (he was seventy-six years of age). With some difficulty I managed to get a small plug of lint, soaked in the perchloride of iron, into the orifice of the rectum; I also applied the styptic freely over the condylomata. He made no complaint of pain, and retained the plug for several hours, when a fresh and larger one was introduced by Dr. Palmer.

On the second day I prepared a large gum-elastic catheter as a *cannule à chemise*, and, soaking the linen with the perchloride, I inserted it about two inches up the rectum, having previously removed much of the tough leathery mass into which the condylomata had been converted by the application of the previous day. This gave great relief, as it prevented distension of the intestine by gas, and permitted the escape of much fæces in a soft state. Next day still further way was made; the catheter was introduced and pushed up a greater distance, and the space between it and the *chemise* was plugged with lint, so that on the fourth day of treatment the forefinger could be passed with tolerable freedom into the rectum. Thus the poor patient's life was for the time saved, and much increase of comfort obtained for him.

In another case, where epithelioma of the rectum had advanced to a hopeless extent, I was able, by dividing the sphincter in a sound portion, to give immediate relief from severe spasm, with at least a temporary improvement in the facility of emptying the bowels.

The external organs of generation in the female are sometimes the seats of epithelioma. There is, however, nothing special in the appearances or treatment of the disease in these localities. Owing to the difficulty of dealing with such cases by operation at any stage, and the delicacy which will conceal the state of affairs until all treatment will be unavailing.

progress, as a rule, is slow, and not very painful. Ointmen of bismuth or of belladonna, with bitartrate of potash, in th earlier stages; powdered bismuth, alum, bitartrate of potas charcoal, and the chlorides, with such general sedatives a opium, lupulus, hyoscyamus, conium, chlorodyne, &c., mus furnish us with means of allaying pain and keeping ulceration at bay, or counteracting the fetor which invariabl attends it in these parts. When the morbid masse become exuberant, much reduction may be effected by th application of the strong perchloride of iron. Thi is not generally a very painful caustic or astringen but in this locality it will be as well to apply it unde chloroform.

The eyelids and ocular conjunctiva are sometimes the sea of epithelial ulceration. Many cases of so-called roden ulcer are of this description, and not a little confusion ha arisen from confounding it with Jacob's ulcer. This i essentially different, both clinically and in its elementar structure. Jacob's ulcer belongs to the fibro-plastic grou and has absolutely nothing analogous to epithelioma. It i small, singularly slow to advance, spares the eye, or if i implicate, in rare and extreme cases, the looser conjunctiv of the eyeball, it stops short of the cornea, and leaves th powers of vision unimpaired. Moreover, it attacks the ol and never implicates the glands; its surface is comparativel smooth; its edges little, if at all, raised above the surface and the discharge from it is scanty; sometimes, also, it wi cicatrize. Now the epithelial ulcer of the eyelid is rapid i progress; irregularly advancing, it seizes on all the tissues- first the mucous, then the submucous, the muscular an the glandular contents of the orbit, and the conjunctiv covering the cornea. By rapid strides it destroys them al have seen several cases of this result. The disease is not limited to the old. I have seen it in a boy under twenty years of age, from whom my colleague, Mr. Stokes, removed the contents of the orbit in September, 1864. I have seen it run a fatal course in a man of middle age, and in a woman past the middle period of life. When early recognised, it can be readily treated by free removal of the diseased parts, and with a satisfactory result. The irregular sprouting margins of the ulcer, its warty surface bleeding on the least touch, and pouring forth a copious and foul discharge, should make it recognised at the first glance; but if any doubt remained, the rapidity of its growth would suffice to distinguish it. It will grow more in three months than Jacob's ulcer will in as many years.

The progress of epithelioma on internal mucous surfaces is more rapid than on the skin or the border membrane. This is owing to the greater vascularity and moisture of their tissue. Removed from the drying influence of the atmosphere, the epithelial scales of the mouth are rounder and smaller than those of the skin, and contain much more fluid. We have reason to believe that they enjoy a more active vitality in proportion to their moisture. Certainly their diseased actions are more energetic in this proportion. Epithelioma of the lining membrane of the cheek is now and then met with, and always as a rapid disease : in a few months it will destroy large portions of the mouth, even perforating the cheek. Except in this rapidity it presents no great difference from the more ulcerated varieties of the same disease in the lip. A rough, irregular, warty ulcer, much depressed in the centre, and with hard hypertrophied edges, not very offensive, and moderately painful—such is the ordinary epithelioma

I have on several occasions removed large masses of epithelioma from the cheek with satisfactory results. Not only have the wounds healed with wonderfully little deformity, but after long years there has been no sign of relapse. In the case of Byrne, a journeyman baker sent to me from Arklow by Dr. L'Estrange, nine years have elapsed since I removed a piece one and a half inches square from the left side of the cheek, starting from the angle of the mouth. For a long time he had periodic attacks of alarm lest relapse were imminent, and paid me constant visits; but by degrees, as the cicatrix became soft and stretched, he got more confidence. I have seen him within a few weeks, perfectly well, and with no likelihood of relapse. From the same fishing town I have had many cases of epithelioma. One case resembled Byrne's exactly, both in the site and size of the piece removed, as also in the subsequent immunity from relapse *in situ*. The cicatrix is there to this day, smooth and healthy as after any clean cut; yet, as if to prove how perfectly epithelioma is a local disease, the irritation of the pipe has set up a distinct formation of hypertrophied papillæ along the margin of the lip. There is a broad space of sound lip between the cicatrix and the new development of the disease. By no stretch of imagination can this be classed as a spreading of the old poison to a new and neighbouring site. The two attacks of epithelioma were both perfectly local in origin, and as distinct as if they were situated in far distant localities in the same person. The man has a naturally loose and large lip, and being a fisherman and a smoker, has abundant cause for development of the disease, without the necessity of our supposing a blood contamination. I have seen more than one case of the reappearance of epithelioma along the margin of such a lip, and it is easy to point out with certainty the cases which are liable to this occurrence. This is a different state of things from a real relapse; the former is perfectly consistent with permanent cure, the latter puts it out of the question.

When the disease appears in the soft and juicy tissues of the tongue, it is with rare exceptions fatal. Here it takes its origin from an ulcer, produced by tartar or otherwise, and worried into a malignant state by a jagged tooth, or by the foul secretions of the mouth. To the stage of superficial ulceration with hypertrophied edges (the first two stages of hypertrophy and ulceration being in this instance blended into one) succeeds general infiltration, and this with a rapidity that leaves little or no time for successful interference. The tongue swells at one side, with nodules hard and painful, and the neighbouring glands immediately sympathise in the action. Great pain is felt in the ulcer and through the tongue generally; much distress is also experienced from the increased size of the tongue, by which the mouth comes to be too small for it, and fresh injuries ensue to it from the teeth. Constant salivation becomes a source of trouble and increased debility; the discharge from the ulcer is often extremely offensive in smell, and must be productive of further injury to health. The tongue will now become more and more irregular in form, from deep infiltrations into its substance; the original ulcer may increase in proportion, but not necessarily so. I have seen very extensive infiltrations of the tongue, with a small and not increasing ulcer. The glands under the chin or jaw, and back towards the ear and along the neck, become successively implicated. At first they are simply enlarged and irritated, but they very soon become altered in outline, more globular, or irregularly nodular; the skin over the larger glands becomes distended and li felt in them. Speech and taste will have been impaired from the commencement.

There may be at times a difficulty in distinguishing the nature of an ulcer of the tongue, whether it be epithelial, syphilitic, or simply an ulcer of irritation. Scirrhus, or encephaloid of the tongue, are forms of disease I have never seen, either in the living or in museums. They may occur, but it must be with great rarity; indeed, I can scarcely conceive how such a soft and vascular organ as the tongue could be the seat of chronic cancer. The substance also of the tongue, almost pure muscle, makes it an unlikely nidus for primary deposit of cancer, although it is quite possible that it may sometimes be the seat of secondary cancer, or of the extension of the disease from neighbouring parts. I have never met with it in any form. Syphilitic ulcers of the tongue are either superficial (snail-track) excoriations, or deep greenish-yellow ulcers, with clean-cut edges of a bright red, frequently arranged symmetrically on both sides of the tongue, although very irregular in their outline; their appearance is very different from the epithelial ulcer, which is almost always on one side of the tongue only, and is either a small ulcer, level with the surface, or is converted into a mere fissure by the elevation and thickening of its edges. Its warty surface, when visible, is quite characteristic, and the discharge from it is very foul, smaller in quantity than from the deep syphilitic sore, not so genuinely purulent, but much more offensive.

Simple ulcers from excoriation will always be small and superficial, unless the tooth in fault be very ragged; they have, however, this satisfactory difference, that they heal up when the source of irritation is removed.

The treatment of epithelial ulcer of the tongue involves serious questions. There is no doubt that such ulcers are almost invariably fatal, and at an early date, if left to themselves. The entire range of caustics has been tried over and over again, with no satisfactory result. If one or other seems occasionally to do service in a special case, it fails when generally applied. Where an operation will not be submitted to, the perchloride of iron, followed up by sulphate of copper, seems to me the best line of treatment. Two or three applications of the perchloride will clean away the masses of epithelial scales, and allow the papillæ to come in contact with the sulphate. The perchloride may be applied by a glass rod or pipette once a day, the old dry slough of scales being picked off next day before the styptic is re-applied. After three or four days the powdered sulphate of copper may be laid on by a camel-hair brush twice a day, allowed to remain a few minutes, and then rinsed off. If the ulceration is slight and dubious in character, it may heal under this treatment; and even if it be not efficacious for cure in bad cases, it will alleviate suffering and retard progress. Lotions of borax and honey, freely used, are also beneficial in these cases, either alone or alternating with the sulphate of copper.

Where the patient is willing to submit to an operation, the surgeon has choice of three methods—the knife, the écraseur, and ligature. Of these, the preference is certainly to be given to the écraseur. The knife is dangerous, from the necessary hæmorrhage, which has proved fatal, even when the lingual artery has been previously tied. Ligature is extremely painful and slow. It may be inefficient also if the mass included in the ligature is thick; for when the cords have cut through to a certain extent, they cease to strangulate the parts, and become loose: so that the surgeon has to repeat the operation, and upon parts

often rapid after ligature, owing, no doubt, to the irritati
set up by it, and kept up for many days before the piece fa
out. The écraseur has the advantages of knife and ligatu
without their disadvantages. With two écraseurs, work
simultaneously, any amount of the tongue may be removed, t
patient being kept under chloroform. Hæmorrhage is avoide
and there is none of the irritation which the ligature produc
I have several times removed, in this way, large segments
the tongue for epithelioma, as well as portions of cancero
tonsils. The operations, though only palliative, have bee
sufficiently satisfactory to justify their repetition. Muc
immediate ease has been obtained by the diminished size
the tongue, and by temporary relief from pain and salivatio
In two cases I was able to remove the posterior segment
the tongue, close up to the epiglottis, by carrying a pr
liminary incision from the angle of the mouth parallel to th
teeth, and as far back as the edge of the masseter, throug
the entire thickness of the cheek. By this means I was abl
to get a strong curved needle armed with cord through th
tongue beyond the disease, the tongue being well pulle
forward by an assistant. By the help of the cord, the chain
of two écraseurs were carried through the tongue, and in
few minutes the entire mass of disease was apparently re
moved. In one case death was imminent before the operation
from the rapid extension of the disease backwards. A fe
weeks more would have sufficed to implicate the epiglottis
when œdema of the glottis would probably have supervened
in any case it would have soon spread into the larynx
The man has had nearly two years' respite, and althoug
there are fresh infiltrations in the tongue and submaxillar
gland, and threatening towards the glands of the neck, ye
the local return has been slight, compared to the mass re
moved. This operation is suitable where a small or super

ficial portion of tongue has to be removed; it is less suitable where the infiltrations are deep, or where much has to be taken away. In this case the preliminary incision is better made under the chin, running along from one facial artery to the other, under cover of the bone. The wound looks very shocking, but gives more room to get at deep parts, and heals generally with little deformity.

All surgeons will remember Mr. Syme's bold operation for removal of the entire tongue, in cases which seemed to demand that formidable operation. His brief description of it is as follows:—"I made an incision through the lip, and extended it down towards the os hyoides, then sawed through the thick part of the symphysis, and completed its division with cutting pliers; next had the two halves held aside while I dissected backwards, so as to cut and tie the lingual arteries near the corner of the os hyoides, and, finally, detached the tongue closely from the body of this bone." Unfortunately, both cases in which Mr. Syme performed this operation died of inflammatory disease of the lungs.

Sedillot's operation differs from Syme's, in that he divided the symphysis menti by two cuts meeting in the middle of the bone, at an angle; this gives a serrated wound in the bone in place of a smooth vertical one, and favours apposition of the surfaces and greater certainty of union.

In other cases, resection of a portion of the bone may be advisable. This was done by my colleagues, Mr. Wharton and Mr. P. C. Smyly, about two years ago. Each case was relieved for some months of a large mass of disease, which rendered life a burden. Although relapse occurred in both cases, yet the subsequent progress of the disease was less distressing; the external mass was removed, and along with it the foul discharges and difficulty of disease returned, it partook, as most of these secondar deposits do, of a deep infiltration, the very cicatrix of th previous wound forming a bar to an exuberant growt externally.

The removal of epithelioma of the tongue is, as a rul merely palliative; generally, too, relapse is rapid. Mr. Tufne has recorded a remarkable exception which occurred i a lady of fifty-five. She had a tumour of three month standing in the left side of her tongue; this was remove by ligature. The disease returned certainly, but not fo eight and a half years, and she lived for a year after th relapse. Such results are, unfortunately, rare.

Death may result from uncontrollable hæmorrhage aft any operation on the tongue. When the knife is used it i a constant cause of alarm and danger. The ligature als when loosening, may partially divide an artery without i being sealed, or an accidental pull upon it often tears on open. Even after operations by the écraseur hæmorrhag will occur now and then. Other dangers arise at time such as pneumonia, as seen in Mr. Syme's cases. Purulen infection is also to be dreaded, although constant attentio to cleanliness, and a liberal use of Condy's permanganate potash, will do much to prevent it. Œdema of the glotti has in one or two cases caused sudden death, and any pre monitory evidence of it, in spasm and difficulty of swallowin should be closely watched for.

In epithelial disease of the tongue, where irritation of th terminal branches of the gustatory nerve produces great pai both in the tongue and in regions supplied by other portio of the fifth nerve, Mr. Hilton devised and executed the sectio of the gustatory nerve as a palliative measure. Mr. Charl H. Moore has revived the operation, and in a paper res the results of five cases in which considerable, though only temporary, benefit accrued. The following is an abstract of this paper:—

"Amongst the many sources of peculiar painfulness of cancer of the tongue, irritation of the fifth nerve could be assigned as occasioning the pain of so much of the tumour as was in front of the fauces; the tenderness of the ulcer, the pain in the region of the parotid, ear, temples, and crown of the head, and the excessive secretion of the saliva. All these being traceable to the encroachment of the disease on the gustatory band of the fifth, the section of that nerve between the disease and the brain should relieve them." The operation, as practised by Mr. Moore, consisted in cutting through all the soft structures on the inside of the ramus of the jaw by an incision commencing immediately behind the last molar tooth, and extending three quarters of an inch in a direction towards the angle of the jaw. The only structures which could be divided by such an incision were the mucous membrane and a part of the mylo-hyoid muscle, with the gustatory nerve descending forward between them about half an inch from the tooth, and nearly at a right angle with the direction of the incision. It is advisable to operate with a curved knife, as the alveolar ridge might shield the nerve from the edge of a straight one, and also to cut outwards quite to the bone. Mr. Moore had operated in five cases of cancer of the tongue. The relief was immediate. Salivation, the pain and tenderness of the tongue, and the reflected irritation of the fifth nerve, were all gone at once. Soreness of the wound, with swelling, remained some days, but after that the patients took food, swallowed, and spoke with comparative ease. They slept, and improved in general health. The tongue in every case was absolutely insensitive fauces forward, and no sapid substances aroused taste in these parts. The relief was permanent so far as the gustatory nerve was concerned, but when the disease invaded the region of the glosso-pharyngeal nerve, new pain arose. Intervals of ease of many months were, however, sometimes secured. In one case Mr. Moore tied the lingual artery, in addition to dividing the nerve, with an interval of two days between the operations. The ulcer became paler, but neither sloughed nor healed, and in five weeks the whole tumour was perceptibly smaller than before the operations. From that time it began again to increase, and the patient refused to allow ligature of the other lingual artery to be performed.

Epithelioma frequently attacks the os and cervix uteri in the form of irregular ulceration, eating deeply into the substance of these parts, and extending ultimately in the form of infiltrations into the body of the uterus on one side, and into the submucous tissue of the vagina on the other. It has been a question whether epithelial or encephaloid disease is more common in the uterus, owing probably to the fact of the early stage of epithelial ulceration being overlooked. I have little doubt that in many cases of supposed encephaloid of the uterus, the disease has really been epithelial, starting from follicular epithelioma of the cervix, and never having been characterised by extensive ulceration of the os and cervix. In other cases the extensive cauliflower excrescence points at once to the epithelial nature of the disease; so that, in this point of view, we have to look out for three conditions: evident epithelial, or cauliflower ulceration; deep-seated epithelial ulceration, commencing as a small deep follicular ulcer; and genuine cancerous infiltration.

Where the disease is genuine cancer, it will arrive at some hæmorrhage, pain, and weight. Its progress will be rapid, hæmorrhage will increase in quantity and frequency, and pain will become at times severe. Digital examination will discover the hard, nodulated, deep-set, irregular masses of cancer, not very large, but, for their size, fixed and firm. Other symptoms, referable to extension of the disease to bladder or rectum, may arise at a late period. Discharges from the vagina, except of blood, are not great in genuine cancer, nor are the discharges offensive, unless blood have been allowed to accumulate and decompose in the passage, from neglect of common cleanliness.

Epithelial disease, more common, as I believe, than encephaloid, may be overlooked at its very commencement, but sooner than cancer it draws attention to its presence. When it is so situated as to spread rapidly towards the vagina, it gives rise to considerable pain. As long as it is limited to the os and cervix, it is not remarkably painful. In early stages it does not bleed, but the discharges from its surface are considerable and offensive, and ought to give early warning of its presence. Once seen it can scarcely be mistaken; it is either an evident epithelial ulcer, warty and efflorescent, with sprouting cauliflower surface, or mushroom-like margins, or else it is a deep-set small ulcer, which may only show as a fissure with thickened edges, because seen sideways. The latter form is more readily overlooked, but its presence may be suspected if the discharges from the os are foul and ichorous, and if there be much thickening and puckering of the lip: it may be looked for then, and, if seen will resemble the small epithelial ulcer of the lip too much to be mistaken. This form of ulcer will eat away much of the os uteri, enlarging the orifice, and at the same time hypertrophying its lips. Somehow I think the ulcer w cauliflower-like. It deepens and infiltrates deeply, witho expanding on the surface. Whether the difference is caused vital or mechanical circumstances I cannot say. It may simp arise from the more lax fibre and softer mucous membra of the patient who gets the cauliflower growth, and the dens and drier fibre of the other who has the more rodent ulce or it may be from some innate difference in the two forms the disease. I incline rather to the former view.

The treatment of epithelial disease of these regions w be generally palliative. It is possible occasionally to get t écraseur round the whole of an epithelial excrescence on t cervix, and to remove it. In most cases the disease is t deeply set for this, and the operation will be abortiv Treatment will then be simply for cleanliness and dela Here, as in epithelioma of the rectum, the perchloride iron is of the utmost value for removing masses of cellul overgrowth and checking hæmorrhage, which at the lat stages is very troublesome and constant. Other caustics a of service occasionally, but none so reliable as this. Su phate of copper in powder may be of use on a surfa cleansed by the perchloride, especially as the latter m then give pain. Permanganate syringings of the vagi will be efficacious, both for cleanliness and as a painle astringent.

I believe that what is called villous cancer of the bladd is simply an extreme condition of papillary and epitheli hypertrophy, similar in nature to epithelioma elsewhe The locality makes all the difference in the appearances. have seen very few cases, and have not had opportunities thoroughly examining them, so that I cannot deny t possibility of a genuinely cancerous tumour of this form.

There remains to be noticed one locality in which e membrane of sebaceous cysts. The common sebaceous cyst may enlarge and ulcerate, or may by accident be ruptured. In either case, the cutaneous margins may become the site of epithelial disease. This differs in no way from the same disease on the skin of the extremities or trunk. It extends by a mushroom-like margin, and will infiltrate the neighbouring parts of the scalp, even going through it, and pressing on the bone. I have seen the bone perforated, and the dura mater exposed, so that the pulsations of the brain were seen through it. These cases are very amenable to operation. They are eminently local, and continue so. The glands in the neck are slow to be poisoned, and when the disease is removed by the knife, pressure can be fairly applied as the parts are healing, so that relapse is rare, even when the amount removed is considerable.

CHAPTER XVI.

CYSTIC TUMOURS.

The surgery of cystic tumours would require a treatise to itself. Their variations are considerable and numerous; so also are the sites in which they are found. It is my intention to dwell only on such as bear resemblance to cancer, either in their external signs or in internal structure.

Cysts are capable of development—

1. In veins.
2. In areolar tissue.
3. In ducts and follicles.
4. In the Graafian vesicle.

Those developed in veins (Pl. XIII, fig. 1) and in areolar tissue may be found in any part of the body.

Those developed in ducts are specially found in the breast, kidney, and testis.

Those developed in the Graafian vesicle are of course found mainly in the ovary, but may also in rare cases be found in a Fallopian tube.

The fluid contents of cysts vary; most frequently they contain a serous or sero-sanguineous fluid; at other times synovia, mucus, blood, oil, or milk will be found in them.

There is a tendency in cysts, when once they have reached a moderate size, to develop new cysts within from which fibrinous tumours may be developed indirectly (Pl. IX, fig. 1).

There is also a tendency to the direct formation of solid growths within cysts. As a rule, I believe this solid matter to have sprung from the inner surface of the cyst, and not to be an external formation, pushing the wall of the cyst before it, so as to get a covering in the way that the abdominal viscera do with the peritoneum. At least I have found no evidence of this reflection of the sac in several cases of solid intra-cystic growths which I have carefully examined.

These solid growths may be cancerous (Pl. XIV, fig. 1), glandular, or imperfectly fibrous. The internal growth, whether cystic or solid, may be small in proportion to the primary cyst, or it may wholly fill the cyst; or still further, it may grow so as to cause the destruction of the primary cyst, either by rupture or by fatty degeneration and atrophy.

In all cases where there is this tendency to internal proliferation, whether of secondary cysts or solid matter, there is a probability that the secondary growth will be the important one as regards prognosis.

Besides all these circumstances, a cystic development in the vessels or ducts of a part is no protection against cancerous, or I suppose, other abnormal infiltrations into its tissue.

From all these circumstances it will be evident that the varieties and complications of cystic disease are almost innumerable.

For present purposes we may consider cystic diseases under the following heads:

1. Simple serous cysts. (Pl. XIII, fig. 1.)
2. Proliferous cysts. (Pl. XIV, fig. 1.)
3. Adenoid tumours. (Pl. XIV, figs. 2, 3.)

Simple serous cysts are very common in the female breast Occurring at any period of lactation, a trivial amount of inflammation may constrict and close the minuter ducts of th gland, cutting them off into either perfect or intercommunicating sacs. The sign generally attendant on this condition i a granular feel of more or less of the gland, as if grains o shot were embedded under the skin or deep in the gland To this will be added a slight sweating from the nipple Periodically, either during, and in rarer cases between th times of menstruation, these symptoms increase in intensity and some uneasiness is felt in the part. Such a condition o the gland may go on until menstruation ceases altogether when it will either subside and give no further trouble, o will suddenly increase with rapidity. Or at any period th breast may receive a blow, and as a result increase in size With the rapid increase of size fluctuation will become manifest, and the flow of discoloured serum from the nipple wil be well marked.

It is rare, however, to find simple serous cysts in the breas arrive at a large size. When cysts in this situation grow rapidly they generally contain solid matter. This variety i known as the proliferous cyst (Paget). The solid matte need not be large in proportion to the cyst, yet its presenc even in small amount seems connected with any large increase in the cyst. This proliferous growth begins at on point of the cyst-wall, and remains for some time attached t it by a narrow pedicle, through which the nutrient vessel enter. By degrees, however, the solid matter may fill u the cyst, and pressing against its walls, produce in them a atheromatous degeneration; in time the walls yield to th continued pressure and disappear, first in detached points and finally altogether. Thus we have substituted for th

PLATE

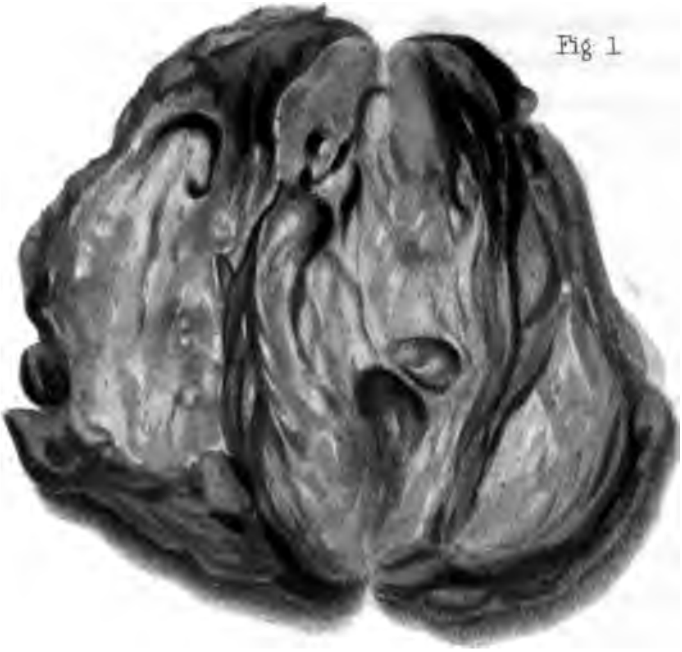
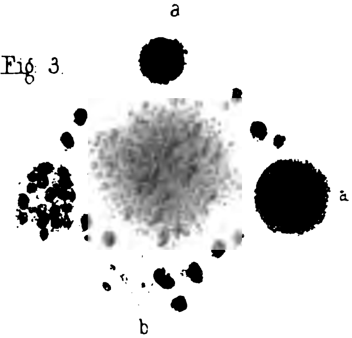
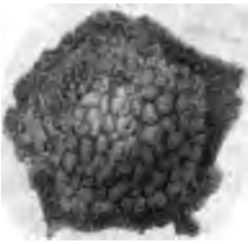


Fig 1

Fig 3.





1

an [illegible]

an imperfect glandular form, as it generally does, the solid tumour which results is known as the adenoid or chronic mammary tumour.

This form or phase of the proliferous cyst is so important as to require a chapter to itself. Other forms of proliferation are met with in the shape of secondary cysts, and of solid growths of various and complex forms of development. The simplest form of lymph-cell sometimes constitutes the bulk of these internal growths, yet every variety of cell will be found, sometimes even in the same tumour. Genuine cancer is also found as an internal growth in cysts, as well as in the form of infiltration in the areolar tissue round them; but both forms of cancer do not occur, as far as I have seen, in the same specimen.

The following are good examples of the simplest form of cystic disease in the breast:

Sero-cystic tumour; amputation of the breast; recovery.—Mrs. S—, aged forty-three, mother of two children, for ten years observed a fluctuating tumour near to and external to the nipple of the left mamma. The breast began to enlarge two months ago, attended with pain. Her sister had died of cancer of the breast; hence she became alarmed, and tried various means calculated to disperse the swelling; she continued them for some weeks without benefit; the breast is enlarged, with a granular feel on the surface, and some deep fluctuation in points. Upon consultation, amputation of the breast was resolved upon; she submitted to the operation November 8th, 1854. The gland (Plate XIII, fig. 1) was studded with cysts of various sizes, four of the largest being from that of a nut to a walnut, and all filled with a serous fluid, more or less ti [illegible] was in the enjoyment of good health, having had no return of the affection in the side operated upon; but a few small cysts have formed in the right breast.

Sero-cystic tumour; amputation of breast; no return of the disease in twenty years. January 14th, 1835.—Mrs. D—, aged forty-five, two months before applying for advice perceived a tumour in her breast, which has gradually increased in size, and is now equal to that of a walnut. It is free from pain or tenderness. In consultation it was determined to remove the whole breast; on examination of the gland it was found that its whole structure was pervaded with cysts, some extremely small; the largest cysts contained a straw-coloured fluid, the smaller ones a thick and dark-coloured mixture, the consistence of cream. Four hours after the operation a smart hæmorrhage took place; several arteries had to be secured.

February 14th, wound healed.

November, 1855.—There has been no return of the affection.

This case is from the late Mr. Smyly's note-book.

In page 93 will be found a case in which the bulk of the tumour was composed of simple cysts, with a few which contained three or four secondary cysts attached to each other and to the cyst-wall by a hollow pedicle; while a portion of the gland was infiltrated with lardaceous scirrhus. This condition of cyst within cyst is a miniature of what is the general course of ovarian cysts.

Of the simpler forms of cell-development in cysts the following is a fair example, and has the additional value of exemplifying the mode of origin and early stages of the adenoid tumour, as well as of showing some points of diagnosis between cystic disease and encephaloid cancer.

Case I. Cystic disease of breast with endogenous growth about forty-five years of age, the mother of several healthy sons and daughters, consulted me in 1858, about a tumour in her breast, which had begun to give her some uneasiness. The account which she gave me was to the following effect:—Many years before (at the least fourteen), while stooping to caress a pet lamb, she received a blow in her breast from the animal's head. This caused her some temporary pain; and a small moveable tumour was soon after perceived in the part. After several years she suffered another injury in the breast, upon which the tumour increased in size; however, as the pain resulting from the injury did not continue, she did not consider the temporary uneasiness sufficient to render surgical interference necessary. Three or four months before she consulted me she sustained a third injury in the breast. From this time she suffered constant uneasiness, and almost continual pain in the part. The tumour now rapidly increased, projecting the skin forward, and rendering it livid over the most prominent point. The superficial veins, also, became enlarged and tortuous. To the eye it had much of the appearance of an encephaloid tumour. Upon handling it, fluctuation became evident; and although there was a basis of solid matter, the bulk of the tumour was plainly of a cystic nature. The solid portion lay deep, and, as well as we could make out, was hard and firm; we could trace no adhesions, and there were no large glands in the arm-pit or about the collar-bone. As it was a source of much uneasiness, both of mind and body, and as the cystic growth was rapidly increasing, and, moreover, as there was a solid and probably not a cancerous basis to the growth, I resolved to remove it: the entire breast was condemned, because of its small size, and the probability of the cysts permeating it in all directions. The wound healed since; her health continues excellent; no return of the disease is to be expected.

A dissection of the breast showed multitudes of small cysts, the size of pins' heads or small peas, a few as large as hazel nuts, one the size of a hen's egg, and two of somewhat smaller dimensions; some contained a sero-sanguineous fluid; some were filled with solid matter. A careful study of several gave the following interesting results, which illustrate the progress from cystic to adenoid tumour:—First, in the largest cyst I found a solid growth, projecting towards the centre, and attached by a pedicle to the lining membrane of the cyst; then, in another cyst a similar mass was found, completely filling up its cavity; while in a third, which was similarly filled up, the pressure of this endogenous growth had produced an atheromatous degeneration of the walls; the fragmentary remains of other cysts could be made out round some other of these endogenous growths. The minute structure of these substances was exceedingly elementary; there was a certain amount of common fibrous stroma binding together a mass of simple fibrine cells, which deviated in no apparent manner from the undeveloped cells of plastic lymph. They were arranged in acini, attached to a pedicle, like minute cauliflower growths; they were of firm consistence, and devoid of the creamy juice which permeates all cancers. The mode of increase was evidently like that of a tree, not only increasing by interstitial deposit, but by additional branches. The resemblance to the genuine structure of the mammary gland was confined to the mode of arrangement. There were no ducts, no cavities in the lobules, and, of course, no epithelial lining. The substance was identical with that of Sir Astley Cooper's chronic mammary tumour, or Velpeau's adenoid tumour. It was evident that the cystic growth was in process of being superseded by the fibrinous, and that a time might have come when all trace of cysts would have disappeared; we had first the cyst pure and simple; then, the endogenous growth, filling the cyst more or less; and, lastly, the cyst disappearing under the pressure of the new growth. The cyst perished by the ordinary oily degeneration; there was nothing special in it, different from the mode in which effete material is removed from the economy under common circumstances; only there was no reproduction, just as in all fatty degenerations. The new material neither infiltrated nor inflamed the tissues on which it pressed.

The cell-growth filled up the cyst, and still continued to grow, while the cyst, unable to expand, became compressed, lost its vitality, became oily, and was finally absorbed, or burned up and removed. This is, probably, the history of most, if not all, chronic mammary growths, as has been ably stated by Mr. Paget, Sir Benjamin Brodie, and others.

The forms of cell-growth in these cystic tumours are sometimes very strange. In one specimen every kind of cell will turn up. Plate I, figure 6, is drawn to scale from such a case. The tumour was one of the ordinary cystic tumours with internal proliferous growth, similar in appearances and symptoms to that of Mrs. S— related above. There was nothing remarkable in the case; the lady was under forty years of age, unmarried, rather nervous and delicate, and had noticed the tumour some two or three years before I removed it. In the specimen will be found oily pavement epithelium of various shapes and sizes, a mass of epithelial cells folded on each other concentrically, giving the false appearance of endogenous development of epithelium, small lymph-cells, large lymph-cells, granular lymph-cells, and one long fibre-cell of considerable size. All of these had small nuclei, upon which circumstance so far justified. The lady, after two years, is well and strong.

Cancerous growths in cysts vary in appearance, and in risk to the patient. Some form rapidly in a cyst which is not filled by them, or which, to speak more accurately, grows rapidly so as always to leave room for the cancer and for much serum in addition. Such cancers are not to my mind as favorable as those which grow rather more slowly, and which, though still encephaloid, have rather more firmness, and fill the cyst. The reason of this, perhaps, is to be sought in some greater irritability of the individual patient. Where the disease produces this inflammatory secretion of serum in the cyst, there is more likelihood of the glands becoming poisoned; while the less irritable patient is characterised by rather less rapid growth, absence of serum, and freedom, at first, from infiltration of the glands. The impression on my mind, necessarily drawn from very few cases, is that the encysted encephaloid of the breast is a comparatively favorable form of the disease, provided there is little or no serum remaining in the cyst, and provided also, that we remove it before it has encroached on and destroyed the cyst. Of the less favorable form of cystic cancer, Plate XIV, figure 1, is a good example, removed from the breast of a young lady, who quickly succumbed to a return of the disease in the axilla and internal organs.

In the testis, cystic disease is sometimes, though rarely, simple. In such cases the cysts are small and few in number, and their presence may not be detected. Their seat is in the tubular part of the organ, their size seldom exceeds a pea, and their contents are simple serum. They may remain stationary, or they may enlarge, as in the breast, still an encysted hydrocele will be the result. I have seen several cysts produced by the closure of the vas deferens, in cases of venereal testicle. Orchitis, from any cause, especially from a blow, will now and then produce these encysted hydroceles.

Much more common in the testis is the combination of cysts with cancer, either in the form of an endogenous growth into their cavities, or, less frequently, as an infiltration in the stroma of the testis, round the cysts; the walls of the cysts generally become cartilaginous when cancerous infiltration takes place round them, and not unfrequently, also, when the cancer is in their cavity.

When cancer co-exists with cysts, there will often be large deposits in the epididymis, and more or less effusion into the tunica vaginalis.

A clear case of encephaloid cancer and cysts of the testis was brought forward at the Pathological Society in 1860, by Mr. Hamilton. The description of it which I noted at the time will correspond with many cases. Through the body of the testis were many cysts, varying in size from a pea to a kidney bean; one was as large as a pigeon's egg. Their walls were hard and tough, sometimes cartilaginous. Their contents were either soft and pulpy masses, composed of large oily cells of encephaloid cancer, or masses of cheesy material, or simple masses of granulation-cells. The epididymis was full of unmistakable encephaloid, grey, with pink dots, and white streaks full of creamy fluid, and abounding in small cancer-cells with large nuclei. The tunica vaginalis was healthy on the surface, thickened in substance, and perforated in three points by the encephaloid tumour of the epididymis, which, released from pressure, became soft and fungous in these points.

The external evidences of this combination testis, in an increase in size and weight, in lividity of the skin of the scrotum, with enlargement of glands in the groin. To these will be added, when the cysts are large, distinct fluctuation, and the irregular increase of some of the nodules, especially about the epididymis; these become soft and elastic as they enlarge, and may be taken for collections of fluid. Hardness in points, soft elasticity in the larger nodules, and fluctuation where a perfectly smooth outline proclaims the underlying cyst, are, in a word, the characteristics of cysto-encephaloid disease of the testis.

Where the tumour is fibrino-cystic, its very great weight, smoothly lobulated and generally oval outline, and absence of glandular enlargement, will distinguish it: this form of disease has been noticed in the chapter on fibrinous tumours.

The treatment of sero-cystic disease should be resolvent at first. Leeches, evaporating and sedative lotions, followed by strapping with belladonna, or with the slightly stimulating soap and opium plaster, will often quiet down excitement. As long as growth is not rapid, nothing more ought to be done in the simple form of the disease. Much watchfulness will be required against cancerous infiltration; this will be evidenced by adhesions to the skin, hardness of parts of the tumour, and pain of a sharp, though perhaps transient severity; or by rapidly growing elastic swellings, dragging pains, and livid distension of the integument. Should either of these groups of symptoms appear, immediate removal is called for. In any case, if the cysts increase rapidly, and will not subside under appropriate resolvents, the part should be removed; mental quiet will be obtained for the patient, and the risks of subsequent cancerous formations, or of simple proliferous growths, will be avoided. Should the disease from the first take the form of an intra-cystic solid growth, or proliferous cyst, its early removal may not be called for, unless there is good reason to believe the growth to be cancerous. Cysts containing growths of a fibroid, fibrous, or glandular structure, may often remain without hurt up to or near the turn of life in the female breast. In the testis they are less common, and from their weight, and the effect on the mind of the patient, may require early removal equally with those which are cancerous. But in the breast we can generally wait with safety until the middle period of life without operating; unless for reasons of *complaisance*, such as if the tumour is large and remarkable. In fact, in the proliferous and adenoid tumours, we can wait until too rapid growth or the feelings of the patient call for our interference.

When we operate for simple cystic disease of the breast, the removal of the entire gland is advisable. It is rare to find cystic disease limited to a segment of any gland which it attacks, and if there has been no secondary growth within the cysts, I should always dread a cancerous infiltration between them. In fact, I look upon sero-cystic disease of breast or testis almost as a first stage in the development of solid tumours, either proliferous or infiltrating, although these latter conditions may not be developed for a long time. Hence the removal of the affected organs may not be called for until many years have passed, and yet when we have to operate, the knife must be freely used. When the intra-cystic growth is cancerous, which we shall probably ascertain by its hardness, or elastic firmness, and by its infecting the skin, it will be well, as a rule, to remove the entire gland. I have seen now and then a case in which the cancerous tumour was of rapid growth, perfectly encysted, loosely rolling in an otherwise sound gland (probable minute cysts excepted). In such a case I have preferred to remove the tumour with a except so far as to ensure the complete removal of the cancer. Not that I do not expect the cancer to return, but because it appears to me that, under such circumstances, the return, if it take place, will be at a longer interval (as experience teaches us), and under some favorable circumstances, not the least of which is its completely isolated condition.

The subject of ovarian cysts is too extensive for this work. To do it justice would require a volume in itself.

Sebaceous cysts, so far as they are connected with the subject of cancer, have already been dealt with in the chapter on epithelioma, and will receive some further notice under the head of melanosis.

CHAPTER XVII.

ADENOID TUMOURS (VELPEAU).

THE simple chronic tumour of the breast, or chronic mammary tumour, was distinctly identified by Sir Astley Cooper in his work on 'Diseases of the Breast.' Subsequently it was more elaborately described by Velpeau, at first under the name of fibrinous tumour, afterwards as fibrous, scirrhoid, or adenoid tumour. By the last name it is now most commonly known. Velpeau's description is more full and accurate than that of Sir Astley Cooper; this remark, however, only applies to the surgery of the affection, and to its structure. Its mode of origin and growth he seems to have missed. Mr. Paget, in his chapter on proliferous cysts, and Sir Benjamin Brodie in his chapter on sero-cystic tumours of the breast, have given the details of the process by which cystic tumours become converted into adenoid; the latter indirectly, and the former with a completeness that leaves little for future writers.

Velpeau is of opinion that adenoid tumours are essentially different from simple hypertrophy of the mammary gland or one of its lobules, and that their analogy to the glandular tissue results from their being formed in its neighbourhood, just as the fibrous tumours of the uterus resemble its normal structure in have often found these tumours attached to the gland by a pedicle of fibrous tissue, and sometimes by a portion of gland-tissue. Velpeau asserts that they are always unconnected, even by community of vessels, and he considers that the others have confounded the true adenoid with hypertrophy of the gland. Sir Astley Cooper, however, did not fall into this error. A careful perusal of his book shows as much. I have no doubt that some of these tumours are hypertrophies of small outlying lobules of proper gland-tissue, while to others a different origin must be assigned. Velpeau's idea is that they arise (in common with other tumours) from an effusion of blood or lymph, the results of a blow, or of a periodic congestion in persons of difficult menstruation. This also may be occasionally true. On the other hand, I am satisfied that neither of the above modes of origin is the most common. Mr. Paget and Sir B. Brodie's account of the process of their formation is more consonant with my observations. In two instances I traced the transformation of simple cysts into adenoid tumours step by step during long periods, having the patients under my care from time to time, subsequently operating on them, and carefully dissecting the tumours. The results of these cases and of others proved to me that Mr. Paget's views are correct, at least as to the most common mode of origin of these tumours. I had the opportunity of seeing many other adenoid tumours, and their history and appearances coincided with these which I had under my care for a lengthened period.

In one case the cyst was solitary; the solid tumour nearly filled it, and was spherical; in the other the cysts were numerous, some empty or filled with fluid only, some partly filled by a firm fibrinous mass growing from the lining wall, and others again completely filled up. In the last the solid matter had begun to compress the walls of the cyst, and to cause their removal, while, in two or three spots, it had destroyed and overgrown the cell-walls, and had begun to extend towards other tumours of similar origin, and even to coalesce with them. The one was an example of the single adenoid growth, the other of the multiple or lobulated.

The adenoid tumour has much interest for the surgeon. It occurs most frequently in a class of patients generally free from cancer—the young unmarried female. It is not, however, absolutely limited, either as to sex, age, or locality, as tumours of almost identical structure are found in persons of all ages and both sexes, and in other localities besides the breast, such as the thyroid and prostate gland. As a rule, however, adenoid tumours present themselves in the breasts of females from eighteen to thirty years of age. Those who are unmarried, or who have no children, are most liable to them, especially if menstruation be habitually difficult; but these rules are by no means rigid. Velpeau, who probably operated on more of these tumours than any other surgeon, states that, out of 55 cases, 20 occurred in those who had borne children. Nearly half of the entire number were under thirty years of age, rather less than half between thirty and fifty, and a remainder of 8 about fifty, one occurring at so late an age as eighty-five. His statistics are not accurate, the separate numbers not tallying with the total; but the general result is as above given.

As a rule, they are not multiple either in the breast or in the individual; but to this there are exceptions, both breasts being simultaneously or, what is less rare, successively the seat of a tumour or tumours, apparently quite detached from each other. So, also, it is rare to see them return after operation, but to this also there is an occasional exception. They are generally slow in th

closed fist; but now and then they grow rapidly or to an i
credible size. Velpeau has seen one reach the size of an ostric
egg in twelve months. The largest I have seen was exhibit
by my friend Dr. Barton, of the Adelaide Hospital, at the Path
logical Society, in November, 1858. The patient was und
thirty years of age. The tumour had been known to exist f
six years; it commenced as a small painless growth, becan
gradually surrounded by other similar tumours, which gave
further annoyance than increasing the size of the breast to i
convenience. At last it grew so large that the distended sk
gave way, and it now became painful. The tumour was
immense size; fully as large as the head of an adult. T
ulcerated surface was six inches in diameter. The enti
gland was involved; a few fluctuating points could be felt
its lowest part. The tumour was quite moveable on the pe
toral, and perfectly local, no lymphatic gland being engage
It was removed by Dr. Walsh, and on section gave proof
its cystic origin. Several smaller cysts still remained u
filled up by solid matter, while others were completely fille
and more or less destroyed by the encroachments of the
solid contents; these exactly resembled the chronic man
mary tumour in structure. Such enormous growths are rar
as patients generally apply for relief before matters come
such a pitch. The case has extreme value, as showing the mo
of origin and growth of adenoid tumours. It is rare to fi
a specimen of large size in which the primary formation
still traceable. Adenoid tumours are found of all siz
from a small nut up to that of the tumour just mentione
Their form varies from spherical or ovoid, with scarcely
trace of irregularity (Pl. XIV, fig. 3), to the most deep
lobulated or racemose outline (Pl. XIV, fig. 2). Th
are generally lobulated, dense, elastic, with no semblance
fluctuation, extremely moveable, with a peculiar

most marked in thin people with lax areolar tissue and little subcutaneous fat. They resemble often a chain of knotted glands in their outline and feel. Sometimes, where cysts exist through the whole breast, it has a granular feel, as if grains of shot were under the skin. They do not poison neighbouring parts, nor the lymphatics. They are found both as outlying tumours beyond the margin of the mammary gland proper, or in the middle of the gland, between its lobules, or, again, superficial to it. As to their relation with the nipple, they do not often lie beneath it, but are found indifferently above, below, or to one side of it. The section of these tumours is like that of fibrous tumours in general, or of the proper gland-structure of the breast; they are white and glistening, firm, and homogeneous-looking, until closely examined, when they are found to be granular in texture, made up very much of large acini, like the breast. They have often a false or even a true cyst. I have seen one with a closely adherent fibrous envelope, contained in a second cyst or bed, made up of the compressed areolar tissue between the lobules of the mammary gland; this secondary cyst was smooth and shining; as it was not removed with the tumour, I could not ascertain if it had any lining membrane proper or epithelial surface.

The tissue of the tumours is either an imitation of the proper gland-tissue, but without ducts, or a simple collection of fibrous and epithelial elements; these are arranged as terminal *culs de sac*, isolated, or grouped together like bunches of grapes. When the growth occurs in the prostate it partakes more of the anatomical character of that organ.

Velpeau's view, that they were formed originally in effusions of blood, led him to look upon the combination with cysts as a later phenomenon of growth; he was does not seem to have an idea that the solid matter could have been a subsequent formation to the cysts. This is eminently Paget's view, and, as I have already stated, it coincides with my observations.

The first case in point is that of a young lady in whom, at the age of fifteen, a small tumour was remarked at the upper part of the left breast. It was then no larger than a hazel-nut; loosely rolling, and painless. It gave no sort of uneasiness, and, though I was in constant attendance on one or other of the family, herself included, I had no complaint made to me about it. It remained almost stationary for two or three years: during an attendance upon her for gastric fever, I had occasion to examine her chest, when I discovered the tumour; it was then the size of a small walnut; it was loose and rolling; there was a certain amount of fluctuation perceptible when it was prevented from slipping away from the touch by fingers placed firmly at each side of it. I made the diagnosis in my own mind, at the time, of a cyst, with an interior development of sölid matter. After her recovery she used some strong discutient lotion—I believe it was the liquor plumbi subacetatis, undiluted, sponged over the tumour occasionally. However, she omitted to show it to me for two years, when, owing to its increase and her approaching marriage, she thought it well that I should see it again. I now found it the size of a small goose-egg, much more solid, but with just so much fluctuation as required a very careful examination to make out. The discutient plan was fully and fairly carried out under the advice of Mr. Smyly, who saw the patient with me; it was attended with a trifling diminution of the tumour; after the lapse of a fortnight the diminution ceased, and the fluctuation could not any longer be [illegible] I [illegible] led that the lessening in

PLATE XIV

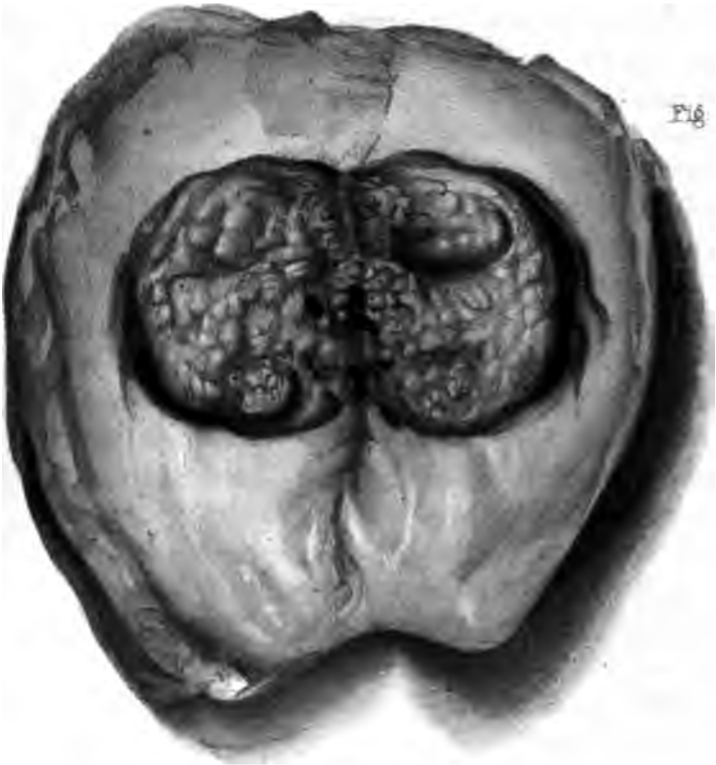
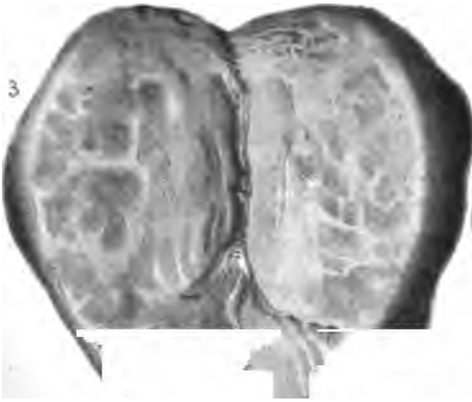


Fig 1

Fig 3



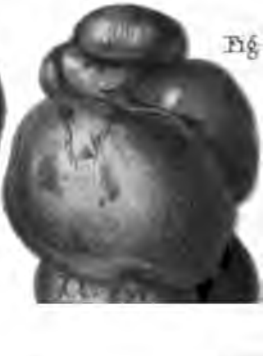


Fig 2.

Fig.

had still remained in the cyst to a small amount. No internal treatment was adopted that I can remember, as there were no indications for it; no dysmenorrhœa, or other uterine irregularity. The only ailment the young lady complained of were occasional colicky pains in the bowels, arising from an excessively bilious habit. She complained of no pain in the breast, but it was a constant worry to her, as it began to interfere with low dresses, and to be pressed upon by her stays, &c. It was decided to remove it, as this fell in with her own wishes, and we did not think that the contemplated change in her life would have any effect in removing so solid a growth. Accordingly I removed it through a single incision of about two and a half inches in length, radiating from the nipple over the tumour. Having cut through the integuments and fascia down to the tumour, I enucleated it by my fingers, aided with a few touches of the knife, and by powerful traction made on it with a vulsellum. It came out with a noise like a cork out of a bottle, or like that of a leather sucker losing its hold. We found it imbedded deeply in an interlobular space, the gland being compressed and hollowed out to receive it; the bed was lined with a shiny white membrane, and seemed to have no vascular connection with the tumour, or its immediate and adhering cyst; this connection existed mainly on the anterior surface in the neighbourhood of our cut. Four wire sutures were inserted when the trifling bleeding had ceased, and compresses of cotton were laid firmly along the track of the bed of the tumour, lying parallel with the wound, but not touching it. These were secured with straps of adhesive plaster, and by a bandage rolled firmly round the trunk, with a pad of cotton inserted between the first and subsecontact, and secure their adhesion. No ligatures had been required; the dressings remained undisturbed for forty-eight hours, as no complaints were made; on removing them union was perfect throughout, all but half an inch, where two or three drops of discoloured serum escaped. On the fifth day this had closed, all sutures were removed, and before the week was over the young lady was out walking, her arm quietly confined in a handkerchief; even this was cast aside next day, so that her most intimate friends remained ignorant of anything having been wrong but a trifling "stitch in her side," which had obliged her to keep her room for two or three days. I attribute this rapid union to the above mode of dressing, which I have found most useful in all operations for removal of tumours.

This tumour, on examination, was remarkably solid; it was contained in a cyst which was closely adherent to a small portion of its surface, loosely attached to the greater part, and free only in a fraction of its extent. It still contained, or was capable of containing, about half a drachm of fluid. This portion of the cyst was situated at the point of the tumour nearest to the nipple. I mention this fact, though I can draw no inference from it. Section of the tumour was dry, tough, of a yellowish-white (the lady was of a dark complexion); it was like a wet or waxy potato in appearance; its texture was close, fibrous bands ran through it radiating apparently from the point where it was most firmly attached to its cyst, but not with very marked regularity; the intermediate substance was finely granular, made up of fibrine-cells, principally arranged in a radiating manner from central points of stromal tissue. Pl. XIV, fig. 3, gives a fair representation of the tumour, which is almost identical with one drawn in Velpeau's work on 'Diseases of

Operations on adenoid tumours are not always attended with so little danger.

I have assisted an eminent surgeon in removing a tumour from a fine healthy young lady, who bore the operation well, and who seemed as likely to recover without a bad symptom as any patient I ever saw, and yet she all but died of erysipelas and phlebitis; this untoward result was from disobedience of orders on her part in going out. Independent, however, of such accidents, which a little care will prevent, the removal of adenoid tumours is prone to be followed now and then by serious or even fatal results. Their situation beneath fascia, and in a vascular organ like the breast, predisposes to the formation and concealment of matter, and to subsequent phlebitis, erysipelas, and pyæmia. I have seen, even in M. Velpeau's service, a melancholy example of this kind, which impressed me much. I give an outline of the case from notes taken at the time, including some clinical remarks of M. Velpeau on the case:—The patient, a remarkably fine and handsome young woman, twenty years of age, was admitted into La Charité, sometime at the latter end of the year 1847. She had a mass of lobulated tumours, the size of an egg, in the left breast; they were grouped as follows:—One, the largest, lay to the inferior portion of the breast; connected with this was another small tumour, and, still lower, to the inner side, lay a third, quite separate and detached. So much for the left breast. The right breast was free from tumour, but a small kernel, the size of a nut, was to be felt in the right axilla. These tumours were firm, not fluctuating, rolling, neither painful nor inconvenient; had appeared without any cause to which the patient could attribute them. The general health was in every way excellent; there was no unhealthy condi they cysts? No, for they do not fluctuate. Are they cancerous? Cancer in any form is rare in so young a person; cancer seldom, if ever, invades two places simultaneously, or if it do it is specially cutaneous cancer, and these tumours could only be confounded with encephaloid cancer. Its mobility under the skin, its multiple nature, coupled with its freedom from glandular or systemic contamination, the healthy aspect of the patient and her total freedom from pain or disturbance of any kind, all point to the conclusion that the tumour is benign. Its firmness, without elasticity; its lobulated form, as if composed of a number of small tumours compressed together, or springing from a common centre; and the fact of detached growths of similar nature, all point to the adenoid tumour."

This patient was operated on, was attacked with erysipelas, and died.

CHAPTER XVIII.

MELANOSIS.

MELANOSIS has generally been classed with cancer, yet cases have undoubtedly occurred which show it to be not always cancerous. It is, in fact, an accident of many classes of tumours, rather than a distinguishing mark of one.

There are at least three forms of the melanotic condition worth noticing—(1) fibrinous, or simple melanosis; (2) cancerous melanosis; and (3) cystic melanosis; all of which are more or less connected with one another.

Simple fibrinous melanosis seems an accidental condition of inflammation; it may be found anywhere that lymph is effused, discolouring the lymph in shades, which vary from green to black. The colour depends on large quantities of black oily granules of various sizes, which are mingled with the ordinary lymph-cell in various proportions (Pl. XIII, fig. 3, *b*). I have seen this condition in the eye and in the liver as a tumour, and on the surface and in the substance of inflamed peritoneum; the same substance forms the bulk of the cystic melanosis which may be found in the testis, breast, and over the surface of the body in the sebaceous follicles. Moles owe their dark colour to similar pigment-granules.

Cancerous melanosis may be found in any part of the body. The eye and testis are its most frequent sites. I have seen it in the lip, in a case of in the lip, covered with a layer of healthy tissue, with no external opening or ulcer, and when removed was found deeply stained with melanotic matter. I do not know if it ever returned.

In Pl. IX, fig. 2, is seen a beautiful example of cancerous melanosis of the contents of the orbit, taken from Lebert's plates; it shows how differently genuine cancer affects the nerve of the orbit and the coats of the eye, leaving some of the muscles intact in an unusual manner.

There is no special difference between melanotic cancer and cancer which is not melanotic; the description and progress of the one will answer for the other, with the sole alteration that the cancer-cells in melanotic cancer are of a dark brown colour, and abound in oil (Pl. XIII, fig. 3, *a*). The treatment for one will suit the other. Cancerous melanosis may be encysted or deposited in cysts, as ordinary encephaloid is.

Simple cystic melanosis is a singular affection, and very rare. I have seen but one case; it followed the removal of simple melanosis of the eyeball. Mr. Laurence gives another very similar to it; and when at Birmingham, four years ago, I heard of a similar case which had been in the infirmary there.

The details of my case are as follows:

The patient, Mary Anne Heaffy, born in 1800, was sent to me by Dr. Bigger, in September, 1857, with a note to the effect that she had lost the use of her right eye by melanosis. I admitted her into the Meath Hospital, September 21st.

She told me that some time in 1855 she felt a sudden and severe dart of pain in the inner angle of the right eye. This pain occurred irregularly, about once each day; it gradually increased in frequency and duration, and extended to the outer angle, the ball of the eye, and the temple, successively;

it was accompanied by great watering of the eye and nostril. In spite of these pains she did not perceive that her vision had been impaired until nine months had elapsed. She then suddenly discovered that, with the exception of a faint glimmer of light in the lower part of the eye, all powers of sight were gone. This state of things slowly advanced for the worse, and on admission I found the following appearances:—There was much swelling of the upper lip, and a good deal of chemosis round the cornea. The eyeball was distorted, slightly enlarged, and projected forward at the lower and inner quarter. The sclerotic at this point was thinned and prominent, and of a blackish hue. The cornea remained transparent, allowing us to see that the capsule of the lens was opaque, and that the lens, in its capsule, was pushed forward into the anterior chamber. The iris was not to be made out; it was, I suppose, drawn out of the way, leaving the pupil widely dilated and capable of permitting the displacement of the lens. The eyeball was perfectly natural in all its muscular movements.

For the sake of relieving a feeling of intolerable tension and pressure, I punctured the chemosis in several places, with great relief to the patient. On the next day I found that the sclerotic had given way at the prominent point, and that a shreddy black substance was oozing through the opening. This continued from day to day, and seemed to relieve her to some extent. Examination of it, by the microscope, revealed only granular pigment-cells, with no signs of cancer-cell.

The sight of the eye was quite gone; the patient was in almost constant pain and mental uneasiness; the disease was still quite local in its manifestation, and confined within the globe of the eye; the patient's general health was quite unaffected as yet. Taking these facts arise in the muscles of the orbit, or even in more distant parts, I held a consultation on the case, and, with the concurrence of my colleagues, I removed the eyeball on the 5th October, 1857. The muscles were removed along with the globe for the sake of ensuring the complete extirpation of all the diseased structures.

The tumour, when divided, was found firmer than the rest of the eye, and somewhat circumscribed; it consisted of amorphous colouring matter, oil-globules, and aggregations of coloured globules (Pl. XIII, fig. 3, *b*). No cancer-cells were to be found in any part of it, nor did it resemble cancerous growths in any particular of outline or consistence. The colouring matter had spread into the vitreous humour, retina, capsule of the lens, and iris; none was found in the lens or sclerotic (even where strained by pressure of the tumour); nor was there any in the optic nerve or muscles. The lens was still in its capsule, but was pushed forward so as to fill the anterior chamber.

The case went on favorably as regards the operation; the eyelids drew together and closed over the empty socket, and no return of the disease took place in the neighbourhood of its primary development.

I saw her several times in the course of the next year. In February, 1859, she came to show me a small globular tumour which had rapidly formed under the skin of the right breast, near the axilla, with some radiating adhesions towards the gland and skin. This had grown, with much pain, to the size of a bean, and had then ceased to grow larger. It was sore to the touch, of a hard tense feel, and showed the dark colour of melanotic deposit through the skin. I applied some lotio plumbi subacetatis to it, and, at the end of ten days, it had lessened a little, had got less painful, and bore handling without discomfort to the poor woman. I would

PLATE XV.

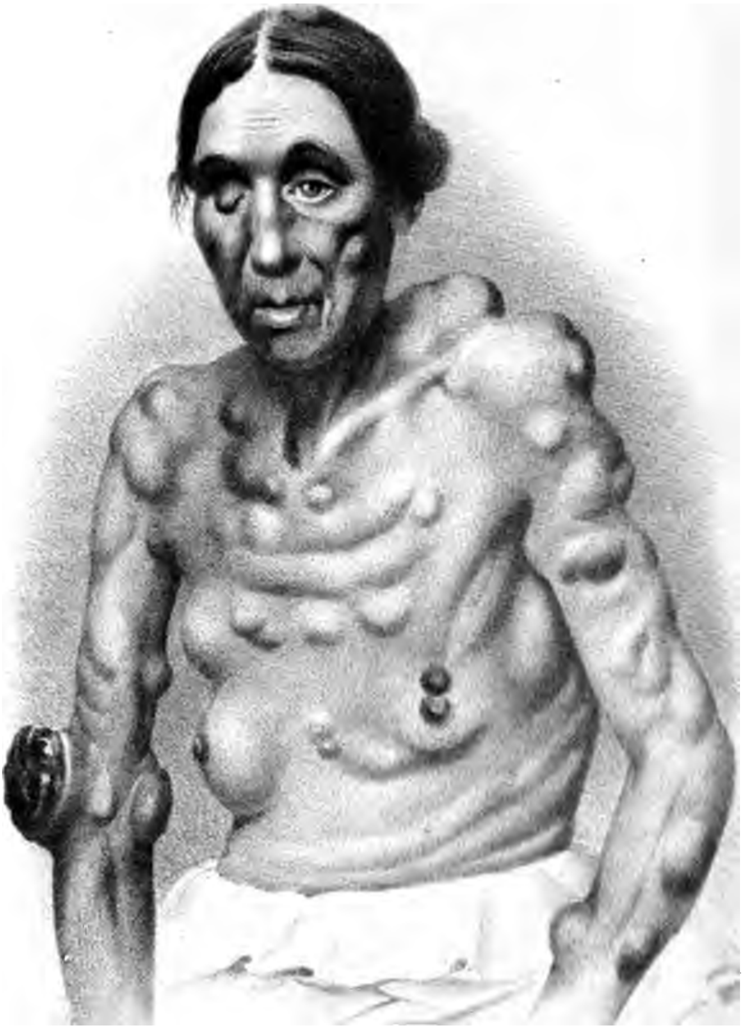
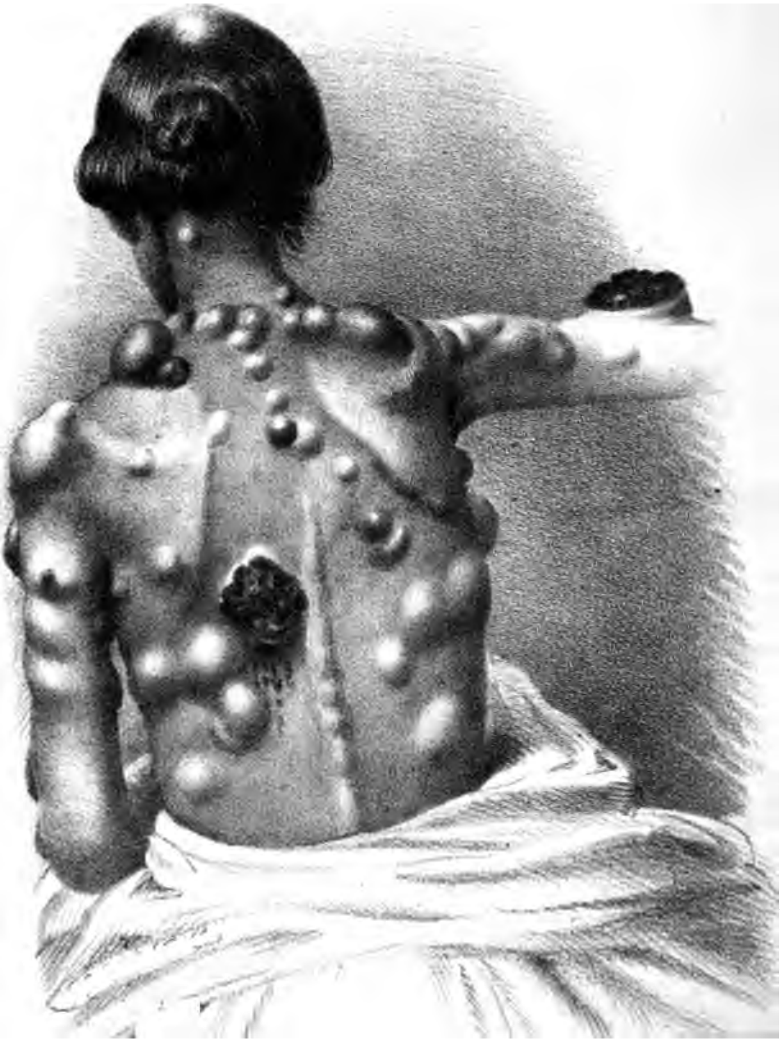


PLATE XVI



have removed it, as it was then solitary, but she would not consent. I saw her again in 1860; she had then three distinct tumours in the right breast, quite isolated from each other; one in the left breast, and several on the arms, legs, and back.

The history of all was alike; a rapid painful growth to a certain size (from that of a nut to that of a chestnut); a complete cessation of pain, and a diminution in the dimensions of each tumour to a certain extent, with the almost simultaneous appearance of a new tumour elsewhere. Nothing could well be done for the relief of the poor woman, or to check the development of these tumours. I gave her various tonics to improve her general health, as it had suffered to some extent. In the summer of 1862 I got Mr. Connolly to execute drawings of the state of the body (Plates XV and XVI). On the left malar bone may be observed a group of irregular oval tumours; these were moveable on the periosteum. On the neck, and all over the thorax and arms, they were thickly scattered, of all sizes. Most were of a dusky hue, as if the intense black was veiled by a layer of skin stretched over them. One on the back, between the shoulders, was of a glossy polished black, like the colour of plumbago. A large one on the loins, the surface of which was cracked, and bled considerably, was also intensely black. The legs and arms were more sparingly covered with these growths, but some of them were as large as oranges. The majority were not larger than walnuts or pigeons' eggs. About one fifth were of greater size, and as many were no larger than filberts. Numerous as the tumours were then, they were, at the date of death, much more numerous. To the state of things thus delineated may be added great numbers of tumours; several on the face, of large size, greatly added to the distressing appearance long confined to bed, wasted and worn out by pain and discharge of blood from three of the largest tumours, over which the skin has given way. Almost daily, for the last year of her life, she had been losing more or less blood from the three large tumours on the back, the arm, and the thigh; yet still she held on to life with an unexampled tenacity. Her body wasted considerably, but by no means to the extreme degree that would be supposed likely from the amount of the abnormal deposit. Until loss of blood had occurred to a great extent, her general health and appearance did not suffer. The tumours had multiplied considerably, and the deposit was much greater than it would have been in the most extreme cases of genuine cancer, and this at a time when the woman's general health was not impaired. In genuine cancer a quarter of the deposit would have been accompanied by a prostration of vital power, and an appearance of cachexia, such as in this case scarcely existed after steady hæmorrhage for twelve months. The poor woman lingered until June, 1863, five and a half years after the removal of her eye. She died exhausted by hæmorrhage. I examined some of the tumours, and found them to be situated in the sebaceous follicles. No examination of internal organs could be obtained, but, from the absence of cachexia, I did not suspect any deposits in them. The original constitution of the disease, as a local development of simple melanotic matter, its reproduction in the form of encysted tumours (having their seat in sebaceous follicles), the absence of cancerous cachexia, properly so called, and the absence of all signs or symptoms of internal deposits, all led me to conclude that this was a case of simple non-cancerous melanosis. The hæmorrhage was a result of ulceration of the over-distended integument. Exactly similar ulceration and hæmorrhage by their large size and peculiar circumstances of situation, or exposure to external injuries by friction, over-distend the skin. A much smaller amount of encephaloid disease would have killed the patient much sooner; and had the melanotic deposit been combined with encephaloid, its destructive progress would have been still more rapid. Internal organs and bones would have been poisoned, and general cachexia would, undoubtedly, have appeared at an early period.

Mr. O'Ferrall's operation for removal of the eyeball is well suited to such cases of simple melanosis as are confined to the ball; it is given in a valuable paper in vol. xix of the 'Dublin Medical Journal,' 1841. It consists in dividing the conjunctiva round the cornea, so as to open the tunica vaginalis oculi; "the six tendons are snipped across with a scissors one after another, where they emerge from the tunic. The eyeball will then be easily detached by a probe or director passed freely round it;" the optic nerve is then divided, and the eyeball falls out. There is no doubt that this simple and easy operation is well suited where the eyeball alone is to be removed. In the paper referred to is a full description of the tunica vaginalis oculi, and of its bearing on many points of practical surgery.

In the 'Lancet' for February 13, 1864, there is detailed a remarkable case of subcutaneous melanosis which occurred in the practice of Mr. Laurence. As it is somewhat similar to the one just related, I shall take the liberty of extracting it. Mr. Laurence remarked that this disease is described by Abernethy as "tuberculated sarcoma;" and that it is so rare that he himself had seen but one other instance of it.

"The patient, James F—, aged thirty-three, a porter, thin and emaciated, was admitted on the 28th of January, stating that he had been ill since form on various parts of the abdomen, which gradually extended to the chest and the posterior part of the trunk of the body. Some are now appearing on the inner side of the arms, especially the left; but the trunk and upper extremities are the parts chiefly affected. Emaciation has been rapid quite recently, his appetite has failed, and he feels weak and debilitated, and has a peculiar look of anguish and misery. He does not appear to suffer any pain, except in the loins. The nodules are mostly small, in size from a millet-seed to a pea or a bean, and seem to be situated beneath the integument in the subcutaneous areolar tissue, although it is probable that some, possibly a large number, may have already invaded the skin. Through the skin they possess a distinct blue colour, like knobs on veins, and at first sight they look as if all the cutaneous veins were knotted here and there. At the right groin is an irregular mass, the size of a small Seville orange, very soft and spongy, and apparently not an involved gland. The man has latterly commenced to pass blood in his urine, which, taken with a pain or soreness in the groin, would point to a probable extension of the disease, not only to the kidneys, but very likely to other internal organs. His breathing a fortnight ago was hurried and rapid, as if a similar invasion of the disease was taking place in the lungs. He was well supported by good nourishment and plenty of stimulants, and the treatment is palliative, for the disease is incurable.

There can be no doubt that the disease is disseminated melanosis, associated either with scirrhous or encephaloid cancer, and analogous to the secondary growths of a malignant nature appearing in various internal organs. This form of the disease is accurately noticed in Dr. Walshe's monograph on cancer [illegible] the division of the disease involving [illegible] he states, the structure of the nodules has been encephaloid, although sometimes actually scirrhous. In a case recorded by Cruveilhier they were abundantly infiltrated with melanotic matter, and exhibited all the varieties of hue caused by the presence of that matter in various proportions. In thirteen cases analysed by Mr. Dorrington, the tumours were seated on head, neck, trunk, and extremities, in three; on the head and trunk in one; on the neck and extremities in two; on the trunk only in four. In about half of the recorded cases the colour of the skin has remained unaffected upon, and in the neighbourhood of, these nodules. Different forms of violet, blackish, or purplish discoloration have been noticed in others. In Mr. Laurence's patient the colour is blue, as already mentioned; but there are large patches on the abdomen of clear discoloration, resembling pityriasis versicolor.

The lymphatic glands are less frequently affected than is usual in other cases, and pain is rare, occurring but in two or three instances; in Mr. Abernethy's case it was not severe. Dr. Walshe adds that "the appetite fails, emaciation and straw-coloured discoloration of the skin follow, and the strength and vital powers rapidly decline."

PAGE
Cancer of uterus ... 274
  and cysts ... 93, 286
Cancroid, Alibert's ... 226
  tumours, author's limitation of the term ... 162
Canquoin's plaster ... 128
Carcinoma, term applied to painful scirrhus ... 1
Carrot poultices to cancerous ulcers ... 126
Caustics in cancer ... 127
Cell development, laws of ... 8
Cells of fibroid tumour ... 3
  cancer ... 2, 4, 15, 16
  connective tissue ... 5
    their arrangement ... 6
    their modifications ... 6
    their development ... 6
  fibrinous tumour ... 3
  fibro-plastic ... 3, 13
  myeloid tumours ... 14
  hæmorrhagic fibrinous tumours 3
  lymph ... 6
    various modes of development of ... 8
  pus ... 8
  tubercle ... 8
Child-bearing predisposes to cancer ... 28
Chloride of bromine ... 117
  of zinc as a caustic ... 128
    and congelation ... 128
Chlorides of gold, zinc, bromine, and antimony ... 133
Chronic cancer ... 3, 77
  or scirrhus ... 32
Chronic mammary tumour ... 290
Classification of tumours ... 18, 24
  Walshe's ... 20
  Paget's ... 21
  author's ... 24
Clinical aspect of tumours ... 18
Cod-liver oil and bromide of potassium 125
Colloid ... 164, 207
  not cancer ... 207
  tumours ... 207
  cells of ... 209
  cases of ... 210
Common parentage of all cell-elements 9
Compression treatment of cancer ... 124

PAGE
Connections of scirrhus as influencing operation ... 145
Connective tissue, cells of ... 5
Constitutional treatment of cancer ... 116
Contagion in cancer or epithelioma ... 240
Cooper, Sir Astley, on chronic mammary tumour ... 291
Copland and Mayo, on contagion in uterine epithelioma ... 240
Crampton, Sir Philip, pruning knife 173
Creasote lotion to cancerous ulcers ... 126
Cure of cancer, natural ... 32. 98
Cylinders of caustic potash and lime ... 132
Cystic tumours ... 278
  the origin of adenoid ... 291
Cysts and scirrhus ... 144
Cysts, proliferous ... 282
  and cancer ... 286
  of breast ... 280
  of testis ... 286
  of ovary ... 279, 289

D.

Death of cancer-cells ... 15, 16
De Ricci, Dr., case of scirrhus of breast ... 89
Desmarres, on encephaloid of eye ... 65
Desmoid tumours ... 10, 219
Development of lymph-cells ... 8
Difference of type of cancer according to race ... 71
Doyle, case of—recurring fibroid ... 199
Dull heavy pain in scirrhus ... 190
Duration of life, average of, in cancer of breast ... 157
  in relation to operative interference ... 29

E.

Ecraseur, first use of in Ireland ... 222
  use of in epithelioma of the tongue ... 270
Effusions into serous cavities, an occa-

PAGE

- Encephaloid, cellular elements of.... 15
  - the type of cancer............ 35
  - encysted 36
  - infiltrated 40
  - liability of various organs to.... 42
  - invariable form of secondary cancer.................... 43
  - of breast 43
  - of bones...................... 53
  - of testis 56
  - of eye........................ 64
    - operations for 68
    - treatment of 71
- Epithelioma 226
  - not cancer.................... 23
  - not cancroid 162
  - astringents in 238
  - causes of, in lip 251
  - its usual seats 228
  - its three stages.............. 229
  - of bladder (villous cancer) 275
  - of border membrane 247
  - of cheek...................... 265
  - of cutaneous surface 237
  - of eyelids 264
  - of lip 247
    - its usual site............. 252
    - its treatment............. 253
    - operation for............. 254
      - Mr. Rynd's 255, 259
  - of os and cervix uteri 274
  - of penis and prepuce 261
  - of rectum and anus............ 261
  - of sebaceous cysts 276
  - of tongue 267
    - diagnosis of 268
    - treatment of............. 268
  - of vulva...................... 253
  - question of infection of 240
  - value of perchloride of iron in, 250, 262
- Epulis, cases of 172
  - malignant 13
- Erectile tumours 220, 225
- Erysipelas after operations for removal of adenoid tumours.......... 298
  - and cancer 150
- Evaporating lotions in cancer.. 119
- Exciting causes of cancer 143
- Extirpation of eyeball, &c........... 68

PAGE

- Exudation from the nipple 144
- Eyeball, extirpation of.......... 68, 306

F.

- Femur, encephaloid of 55
- Fell's treatment of cancer 131
- Fibrinous or hæmorrhagic tumour ... 195
  - cells of 3
- Fibroid tumour, recurrent 12, 185
  - cells of 3
- Fibro-cellular or desmoid tumours .. 219
  - cells of 11
- Fibro-cystic tumours 220
- Fibro-elastic tumours............. 219
- Fibro-muscular tumours 219
- Fibro-nucleated tumour........... 185
  - cells of 12
    - Dr. Reddy's case of........ 193
- Fibro-plastic tumours.............. 166
  - cells of 4, 13
  - ulcer, Jacob's 178
- Fibrous tumours 218
  - cells of 4
  - of uterus, &c. 218
- Fig poultice to foul cancerous ulcers . 126
- Form of cell, only one attribute out of many 169
- Freezing and caustics 128
- Frequency, relative, of tumours 26
- Fungating ulcer of scirrhus, case of. 86
- Fungus hæmatodes 41
  - of breast, case 51
  - of testis 56
  - true and false 204

G.

- Gay, Mr. John, on pernitrate of mercury in epithelial ulcers 244
- Girdwood, Dr., on permanganate of potash 135
- Girouard's treatment of cancer...... 131
- Glandular infiltrations 156
- Gluteal region, scirrhus of.......... 109

PAGE

Quinlan, Dr., case of cancer of thyroid body.................... 94
  fibro-plastic tumour of superior maxilla.................... 174

R.

Recurrent fibroid tumours........12, 185
  cells of 3
Relative frequency of various forms of tumour 26
Removal of tumours by caustics 127
  and congelation 128
Resolvent treatment of cancer....... 123
Rynd, the late Mr., case of fibrinous tumour 205
  operation for restoration of lower lip 255

S.

Sarcomata 21
Sanguinaria Canadensis, or Puccoon. 131
Sawyer, Dr., case of scirrhus of breast......................... 79
Scirrhous ulcer, cicatrization of..... 85
Scirrhus, a term applied to non-ulcerated cancers 1
  cells of 6, 16
  characteristics of.............. 32
  mode of terminating 34
  atrophic 77, 97
  lardaceous.................... 77
  synonyms of. 77
  varieties of.................. 77
  simple 77
  physical characters of.......... 77
  microscopic characters of 81
  stroma of 82
  symptoms of.................. 82
  two kinds of pain in........... 83
  progress of 84
  ulceration of.................. 85
  in both breasts simultaneously .. 95
  of thyroid gland 96
  of breast, position of.............. 144

PAGE

Scirrhus of breast, progress of 146
  complication with cysts, ... 93, 286
Secondary cancer 29, 31
  deposits 156
Sedative applications to cancer...... 119
  medicines for cancer. 122
Sero-cystic tumours................ 280
Serous effusions a sign of cancer 59
Sibley, on coincidence of cancer and tubercle in same patients 27
  on cachexia 142
  and Arnott, on tubercle in cancerous patients 29
  statistics of cancer 158
Sir B. Brodie, on adenoid tumours .. 291
Situation of cancer as regards operation........................ 144
Size of a cancerous tumour in reference to operation 145
Smith, Mr. Robert, on Marjolin's ulcer 237
Smyly, the late Mr., case of malignant strumous testis 62
  case of axillary cancer 90
  case of epulis 173
  on erysipelas after operation for cancer 150
  case of cancer 156
  Mr. P. C., on the method of applying straps................ 120
  case of epithelioma of tongue .. 271
Solly, Mr., on Landolfi's treatment of cancer 134
Spencer Wells, Mr., on bromized cod-liver oil 125
St. Lawrence, Mr., case of epithelial lip 258
Statistics of tumours 26
  of cancer 157
Sterility a protection against cancer . 28
Stokes, Mr. Wm., case of epithelioma of eyelids and eyeball............ 265
Strapping the breast, mode of 120
Sulphate of copper in epithelioma... 269
Sulphate of zinc, anhydrous, in cancer 135
Sulphuric acid and saffron caustic.... 128
  and sawdust 128
  and sulphate of zinc 183
Syme, Mr., on caustics in scirrhus .. 127
  operation for removal of tongue 271
    Sedillot's modification of ... 271

T.

PAGE

- Tanner, Mr., on erysipelas after operations for cancer 150
- Tannin and tannic acid in hæmorrhage 126
- Testis, encephaloid of 56
  - strumous disease of 62
  - fibrinous tumours of 199
  - cystic disease of 286
- Thomson, Dr. A. T., on arsenic 125
- Thyroid gland, scirrhus of 96
- Tincture of iron as a hæmostatic 126
- Tongue, epithelioma of 267
- Treatment of scirrhus 114
  - preparatory to operation—local 115
    - constitutional 116
    - absorbent 123
    - special, of lardaceous cancer 124
    - by pressure 124
- Tubercle, cells of 8
  - and cancer not antagonistic, 142, 272
- Tubercular scirrhus 152
- Tufnell, Mr., case of epithelioma of the tongue 272

U.

- Ulceration of scirrhus 85
- Ulcerative stage of warts 231
- Uterine tumours 223
- Uterus, fibrous tumours of 218
  - cancer of 274
  - epithelioma of 274

V.

- Various forms of cell growth ...... 1—17
- Velpeau, on retarding the growth of scirrhus 121
  - résumé of caustics 128

PAGE

- Velpeau's favorite caustic 128
  - on fibro-plastic tumours 162
  - on adenoid tumours 291
  - fatal case of adenoid tumours.... 298
- Venereal testis 58
- Vienna caustic in cancer 128
- Villous cancer 276
- V incision in epithelioma of lip 255
- Virchow, on cells of connective tissue 7
  - views of, as regards pus-cell.... 8
  - on granular appearance of cells 11
  - on epithelioma 228

W.

- Walsh, Dr. A., case of adenoid tumour 293
- Walshe's classification of tumours ... 20
  - on encephaloid of testis 59
  - on arsenic in cancer 125
- Warts, degeneration of 229
  - simple hypertrophies 229
  - ulceration of 231
- Watson, Dr. Eben, on sulphate of zinc 135
- Weedon-Cooke, Dr., on manganese cum potassâ 135
- Wells, Mr. Spencer, on bromized cod-liver oil 125
- Wharton, Mr., case of lardaceous scirrhus of gluteal region 109
  - epithelioma of tongue 271
- Wilks, on granular appearance of cells 11

Z.

- Zinc, chloride of, as a caustic 128

London, New Burlington Street,
June, 1865.

MESSRS. CHURCHILL & SONS'

Publications,

IN

MEDICINE

AND THE VARIOUS BRANCHES OF

NATURAL SCIENCE.

"It would be unjust to conclude this notice without saying a few words in favour of Mr. Churchill, from whom the profession is receiving, it may be truly said, the most beautiful series of Illustrated Medical Works which has ever been published."—*Lancet.*

"All the publications of Mr. Churchill are prepared with so much taste and neatness, that it is superfluous to speak of them in terms of commendation."—*Edinburgh Medical and Surgical Journal.*

"No one is more distinguished for the elegance and *recherché* style of his publications than Mr. Churchill."—*Provincial Medical Journal.*

"Mr. Churchill's publications are very handsomely got up: the engravings are remarkably well executed."—*Dublin Medical Press.*

"The typography, illustrations, and getting up are, in all Mr. Churchill's publications, most beautiful."—*Monthly Journal of Medical Science.*

"Mr. Churchill's illustrated works are among the best that emanate from the Medical Press."—*Medical Times.*

MESSRS. CHURCHILL & SONS are the Publishers of the following Periodicals, offering to Authors a wide extent of Literary Announcement, and a Medium of Advertisement, addressed to all Classes of the Profession.

* * *

THE BRITISH AND FOREIGN MEDICO-CHIRURGICAL REVIEW, AND QUARTERLY JOURNAL OF PRACTICAL MEDICINE AND SURGERY.

Price Six Shillings. Nos. I. to LXX.

THE QUARTERLY JOURNAL OF SCIENCE.

Price Five Shillings. Nos. I. to VI.

THE QUARTERLY JOURNAL OF MICROSCOPICAL SCIENCE,

INCLUDING THE TRANSACTIONS OF THE MICROSCOPICAL SOCIETY OF LONDON.

Edited by DR. LANKESTER, F.R.S., and GEORGE BUSK, F.R.S. Price 4s. Nos. I. to XVIII. *New Series.*

THE JOURNAL OF MENTAL SCIENCE.

By authority of the Association of Medical Officers of Asylums and Hospitals for the Insane. Edited by C. L. ROBERTSON, M.D., and HENRY MAUDSLEY, M.D.

Published Quarterly, price Half-a-Crown. *New Series.* Nos. I. to XVII.

THE JOURNAL OF BRITISH OPHTHALMOLOGY AND QUARTERLY REPORT OF OPHTHALMIC MEDICINE AND SURGERY.

Edited by JABEZ HOGG, Surgeon. Price 2s. 6d. No. I.

ARCHIVES OF MEDICINE:

A Record of Practical Observations and Anatomical and Chemical Researches, connected with the Investigation and Treatment of Disease. Edited by Dr. LIONEL S. BEALE, F.R.S. Published Quarterly; Nos. I. to VIII., 3s. 6d.; IX. to XII., 2s. 6d., XIII. to XV., 3s.

ARCHIVES OF DENTISTRY:

Edited by EDWIN TRUMAN. Published Quarterly, price 4s. Nos. I. to III.

THE ROYAL LONDON OPHTHALMIC HOSPITAL REPORTS, AND JOURNAL OF OPHTHALMIC MEDICINE AND SURGERY.

Vol. IV., Part 3, 2s. 6d.

THE MEDICAL TIMES & GAZETTE.

Published Weekly, price Sixpence, or Stamped, Sevenpence.

Annual Subscription, £1. 6s., or Stamped, £1. 10s. 4d., and regularly forwarded to all parts of the Kingdom.

THE HALF-YEARLY ABSTRACT OF THE MEDICAL SCIENCES.

Being a Digest of the Contents of the principal British and Continental Medical Works; together with a Critical Report of the Progress of Medicine and the Collateral Sciences. Post 8vo. cloth, 6s. 6d. Vols. I. to XL.

THE PHARMACEUTICAL JOURNAL,

CONTAINING THE TRANSACTIONS OF THE PHARMACEUTICAL SOCIETY.

Published Monthly, price One Shilling.

*** Vols. I. to XXII., bound in cloth, price 12s. 6d. each.

THE BRITISH JOURNAL OF DENTAL SCIENCE.

Published Monthly, price One Shilling. Nos. I. to CV.

THE MEDICAL DIRECTORY FOR THE UNITED KINGDOM.

Published Annually. 8vo. cloth, 10s. 6d.

ANNALS OF MILITARY AND NAVAL SURGERY AND TROPICAL MEDICINE AND HYGIENE,

Embracing the experience of the Medical Officers of Her Majesty's Armies and Fleets in all parts of the World.

Published Annually. Vol. I., price 7s.

A CLASSIFIED INDEX
TO
MESSRS. CHURCHILL & SONS' CATALOGUE.

ANATOMY.

	PAGE
Anatomical Remembrancer	3
Flower on Nerves	11
Hassall's Micros. Anatomy	14
Heale's Anatomy of the Lungs	14
Heath's Practical Anatomy	15
Holden's Human Osteology	15
Do. on Dissections	15
Huxley's Comparative Anatomy	16
Jones' and Sieveking's Pathological Anatomy	17
Maclise's Surgical Anatomy	19
St. Bartholomew's Hospital Catalogue	24
Sibson's Medical Anatomy	25
Waters' Anatomy of Lung	29
Wheeler's Anatomy for Artists	30
Wilson's Anatomy	31

CHEMISTRY.

Abel & Bloxam's Handbook	3
Bernays' Notes for Students	6
Bowman's Practical Chemistry	7
Do. Medical do.	7
Fownes' Manual of Chemistry	12
Do. Actonian Prize	12
Do. Qualitative Analysis	12
Fresenius' Chemical Analysis	12
Galloway's First Step	12
Do. Second Step	12
Do. Analysis	12
Do. Tables	12
Griffiths' Four Seasons	13
Horsley's Chem. Philosophy	16
Mulder on the Chemistry of Wine	20
Plattner & Muspratt on Blowpipe	22
Speer's Pathol. Chemistry	26
Sutton's Volumetric Analysis	27

CLIMATE.

Barker on Worthing	4
Bennet on Mentone	6
Dalrymple on Egypt	10
Francis on Change of Climate	12
Hall on Torquay	14
Haviland on Climate	14
Lee on Climate	18
Do. Watering Places of England	18
McClelland on Bengal	19
McNicoll on Southport	19
Martin on Tropical Climates	20
Moore's Diseases of India	20
Scoresby-Jackson's Climatology	24
Shapter on South Devon	25
Siordet on Mentone	25
Taylor on Pau and Pyrenees	27

DEFORMITIES, &c.

Adams on Spinal Curvature	3
Barwell on Clubfoot	4
Bigg on Deformities	6
Do. on Artificial Limbs	6

DISEASES OF WOMEN AND CHILDREN.

	PAGE
Ballard on Infants and Mothers	4
Bennet on Uterus	6
Do. on Uterine Pathology	6
Bird on Children	7
Bryant's Surg. Diseases of Child.	7
Eyre's Practical Remarks	11
Harrison on Children	14
Hood on Scarlet Fever, &c.	16
Kiwisch (ed. by Clay) on Ovaries	9
Lee's Ovarian & Uterine Diseases	18
Do. on Diseases of Uterus	18
Do. on Speculum	18
Seymour on Ovaria	25
Smith on Leucorrhœa	26
Tilt on Uterine Inflammation	28
Do. Uterine Therapeutics	28
Do. on Change of Life	28
Underwood on Children	29
Wells on the Ovaries	30
West on Women	30
Do. (Uvedale) on Puerperal Diseases	30

GENERATIVE ORGANS, Diseases of, and SYPHILIS.

Acton on Reproductive Organs	3
Coote on Syphilis	10
Gant on Bladder	13
Hutchinson on Inherited Syphilis	16
Judd on Syphilis	17
Lee on Syphilis	18
Parker on Syphilis	21
Wilson on Syphilis	31

HYGIENE.

Armstrong on Naval Hygiene	4
Beale's Laws of Health	5
Do. Health and Disease	5
Bennet on Nutrition	6
Carter on Training	8
Chavasse's Advice to a Mother	9
Do. Advice to a Wife	9
Dobell's Germs and Vestiges of Disease	11
Do. Diet and Regimen	11
Fife & Urquhart on Turkish Bath	11
Granville on Vichy	13
Hartwig on Sea Bathing	14
Do. Physical Education	14
Hufeland's Art of prolonging Life	16
Lee's Baths of Germany	18
Moore's Health in Tropics	20
Parkes on Hygiene	21
Parkin on Disease	21
Pickford on Hygiene	21
Robertson on Diet	24
Routh on Infant Feeding	23
Rumsey's State Medicine	24
Tunstall's Bath Waters	28
Wells' Seamen's Medicine Chest	30
Wife's Domain	30
Wilson on Healthy Skin	31
Do. on Mineral Waters	31
Do. on Turkish Bath	31

MATERIA MEDICA and PHARMACY.

MATERIA MEDICA and PHARMACY—*continued.*

	PAGE
Pharmacopœia Londinensis	22
Prescriber's Pharmacopœia	22
Royle's Materia Medica	24
Squire's Hospital Pharmacopœias	26
Do. Companion to the Pharmacopœia	26
Steggall's First Lines for Chemists and Druggists	26
Stowe's Toxicological Chart	27
Taylor on Poisons	27
Waring's Therapeutics	29
Wittstein's Pharmacy	31

MEDICINE.

Adams on Rheumatic Gout	3
Addison on Cell Therapeutics	3
Do. on Healthy and Diseased Structure	3
Aldis's Hospital Practice	3
Anderson on Fever	4
Austin on Paralysis	4
Barclay on Medical Diagnosis	4
Barlow's Practice of Medicine	4
Basham on Dropsy	5
Brinton on Stomach	7
Do. on Ulcer of do.	7
Budd on the Liver	8
Do. on Stomach	8
Camplin on Diabetes	8
Chambers on Digestion	8
Do. Lectures	8
Davey's Ganglionic Nervous System	11
Eyre on Stomach	11
French on Cholera	12
Fuller on Rheumatism	12
Gairdner on Gout	12
Gibb on Throat	13
Granville on Sudden Death	13
Gully's Simple Treatment	13
Habershon on the Abdomen	13
Do. on Mercury	13
Hall (Marshall) on Apnœa	14
Do. Observations	14
Headland—Action of Medicines	14
Hooper's Physician's Vade-Mecum	13
Inman's New Theory	16
Do. Myalgia	16
James on Laryngoscope	17
Maclachlan on Advanced Life	19
Marcet on Chronic Alcoholism	19
Meryon on Paralysis	20
Pavy on Diabetes	21
Peacock on Influenza	21
Peet's Principles and Practice of Medicine	21
Richardson's Asclepiad	23
Roberts on Palsy	23
Robertson on Gout	24
Savory's Compendium	24
Semple on Cough	24
Seymour on Dropsy	25
Shaw's Remembrancer	25
Smee on Debility	25
Thomas' Practice of Physic	27
Thudichum on Gall Stones	[illegible]

CLASSIFIED INDEX.

MICROSCOPE.

PAGE

Beale on Microscope in Medicine 5
Carpenter on Microscope 8
Schacht on do. 24

MISCELLANEOUS.

Acton on Prostitution 3
Barclay's Medical Errors 4
Bascome on Epidemics 4
Bryce on Sebastopol 7
Buckle's Hospital Statistics 8
Cooley's Cyclopædia 9
Gordon on China 13
Graves' Physiology and Medicine 13
Guy's Hospital Reports 13
Harrison on Lead in Water 14
Hingeston's Topics of the Day 15
Lane's Hydropathy 18
Lee on Homœop. and Hydrop. 18
London Hospital Reports 19
Marcet on Food 19
Massy on Recruits 20
Mayne's Medical Vocabulary 20
Part's Case Book 21
Redwood's Supplement to Pharmacopœia 23
Ryan on Infanticide 24
Snow on Chloroform 26
Steggall's Medical Manual 26
Do. Gregory's Conspectus 26
Do. Celsus 26
Whitehead on Transmission 30

NERVOUS DISORDERS AND INDIGESTION.

Birch on Constipation 6
Carter on Hysteria 8
Downing on Neuralgia 11
Hunt on Heartburn 16
Jones (Handfield) on Functional Nervous Disorders 17
Leared on Imperfect Digestion 18
Lobb on Nervous Affections 19
Radcliffe on Epilepsy 22
Reynolds on the Brain 23
Do. on Epilepsy 23
Rowe on Nervous Diseases 24
Sieveking on Epilepsy 25
Turnbull on Stomach 28

OBSTETRICS.

Barnes on Placenta Prævia 4
Hodges on Puerperal Convulsions 15
Lee's Clinical Midwifery 18
Do. Consultations 18
Leishman's Mechanism of Parturition 18
Mackenzie on Phlegmasia Dolens 19
Pretty's Aids during Labour 22
Priestley on Gravid Uterus 22
Ramsbotham's Obstetrics 23
Do. Midwifery 23
Sinclair & Johnston's Midwifery 25
Smellie's Obstetric Plates 25
Smith's Manual of Obstetrics 26
Swayne's Aphorisms 27
Waller's Midwifery 29

OPHTHALMOLOGY.

Cooper on Injuries of Eye 9

OPHTHALMOLOGY—cont^d.

PAGE

Hulke on the Ophthalmoscope 16
Jacob on Eye-ball 16
Jago on Entoptics 17
Jones' Ophthalmic Medicine 17
Do. Defects of Sight 17
Do. Eye and Ear 17
Nunneley on the Organs of Vision 21
Walton on the Eye 29
Wells on Spectacles 30

PHYSIOLOGY.

Carpenter's Human 8
Do. Comparative 8
Do. Manual 8
Heale on Vital Causes 14
O'Reilly on the Nervous System 21
Richardson on Coagulation 23
Shea's Animal Physiology 25
Virchow's (ed. by Chance) Cellular Pathology 8

PSYCHOLOGY.

Arlidge on the State of Lunacy 4
Bucknill and Tuke's Psychological Medicine 8
Conolly on Asylums 9
Davey on Nature of Insanity 11
Dunn's Physiological Psychology 11
Hood on Criminal Lunatics 16
Millingen on Treatment of Insane 20
Noble on Mind 21
Williams (J. H.) Unsoundness of Mind 30

PULMONARY and CHEST DISEASES, &c.

Alison on Pulmonary Consumption 3
Billing on Lungs and Heart 6
Bright on the Chest 7
Cotton on Consumption 10
Do. on Stethoscope 10
Davies on Lungs and Heart 10
Dobell on the Chest 11
Fenwick on Consumption 11
Fuller on Chest 12
Do. on Heart 12
Jones (Jas.) on Consumption 17
Laennec on Auscultation 18
Markham on Heart 20
Richardson on Consumption 23
Salter on Asthma 24
Skoda on Auscultation 20
Thompson on Consumption 27
Timms on Consumption 28
Turnbull on Consumption 28
Waters on Emphysema 29
Weber on Auscultation 29

RENAL and URINARY DISEASES.

Acton on Urinary Organs 3
Beale on Urine 5
Bird's Urinary Deposits 6
Coulson on Bladder 10
Hassall on Urine 14
Parkes on Urine 21
Thudichum on Urine 28
Todd on Urinary Organs 28

SCIENCE—continued.

PAGE

Craig on Electric Tension 10
Hardwich's Photography 14
Hinds' Harmonies 15
Howard on the Clouds 16
Jones on Vision 17
Do. on Body, Sense, and Mind 17
Mayne's Lexicon 20
Pratt's Genealogy of Creation 22
Do. Eccentric & Centric Force 22
Do. on Orbital Motion 22
Do. Astronomical Investigations 22
Price's Photographic Manipulation 22
Rainey on Shells 23
Reymond's Animal Electricity 23
Taylor's Medical Jurisprudence 27
Unger's Botanical Letters 29
Vestiges of Creation 29

SURGERY.

Adams on Reparation of Tendons 3
Do. Subcutaneous Surgery 3
Anderson on the Skin 3
Ashton on Rectum 4
Barwell on Diseases of Joints 4
Brodhurst on Anchylosis 7
Bryant on Diseases of Joints 7
Callender on Rupture 8
Chapman on Ulcers 9
Do. Varicose Veins 9
Clark's Outlines of Surgery 9
Collis on Cancer 9
Cooper (Sir A.) on Testis 10
Do. (S.) Surg. Dictionary 10
Coulson on Lithotomy 10
Curling on Rectum 10
Do. on Testis 10
Druitt's Surgeon's Vade-Mecum 11
Fergusson's Surgery 11
Gant's Principles of Surgery 13
Heath's Minor Surgery and Bandaging 15
Higginbottom on Nitrate of Silver 15
Hodgson on Prostate 15
Holt on Stricture 15
James on Hernia 17
Jordan's Clinical Surgery 17
Lawrence's Surgery 18
Do. Ruptures 18
Liston's Surgery 18
Logan on Skin Diseases 19
Macleod's Surgical Diagnosis 19
Do. Surgery of the Crimea 19
Maclise on Fractures 19
Maunder's Operative Surgery 20
Nunneley on Erysipelas 21
Pirrie's Surgery 22
Savage's Female Pelvic Organs 24
Smith (Hy.) on Stricture 25
Do. on Hæmorrhoids 25
Do. on the Surgery of the Rectum 25
Do. (Dr. J.) Dental Anatomy and Surgery 26
Squire on Skin Diseases 26
Steggall's Surgical Manual 26
Teale on Amputation 27
Thompson on Stricture 27
Do. on Prostate 27
Do. Lithotomy and Lithotrity 27
Tomes' Dental Surgery 28
Toynbee on Ear 28
Wade on Stricture 29
Watson on the Larynx 29
Webb's Surgeon's Ready Rules 29

MR. F. A. ABEL, F.R.S., & MR. C. L. BLOXAM.

HANDBOOK OF CHEMISTRY: THEORETICAL, PRACTICAL, AND TECHNICAL. Second Edition. 8vo. cloth, 15*s.*

MR. ACTON, M.R.C.S.

I.

A PRACTICAL TREATISE ON DISEASES OF THE URINARY AND GENERATIVE ORGANS IN BOTH SEXES. Third Edition. 8vo. cloth, £1. 1*s.* With Plates, £1. 11*s.* 6*d.* The Plates alone, limp cloth, 10*s.* 6*d.*

II.

THE FUNCTIONS AND DISORDERS OF THE REPRODUCTIVE ORGANS IN CHILDHOOD, YOUTH, ADULT AGE, AND ADVANCED LIFE, considered in their Physiological, Social, and Moral Relations. Fourth Edition. 8vo. cloth, 10*s.* 6*d.*

III.

PROSTITUTION: Considered in its Moral, Social, and Sanitary Bearings, with a View to its Amelioration and Regulation. 8vo. cloth, 10*s.* 6*d.*

DR. ADAMS, A.M.

A TREATISE ON RHEUMATIC GOUT; OR, CHRONIC RHEUMATIC ARTHRITIS. 8vo. cloth, with a Quarto Atlas of Plates, 21*s.*

MR. WILLIAM ADAMS, F.R.C.S.

I.

ON THE PATHOLOGY AND TREATMENT OF LATERAL AND OTHER FORMS OF CURVATURE OF THE SPINE. With Plates. 8vo. cloth, 10*s.* 6*d.*

II.

ON THE REPARATIVE PROCESS IN HUMAN TENDONS AFTER SUBCUTANEOUS DIVISION FOR THE CURE OF DEFORMITIES. With Plates. 8vo. cloth, 6*s.*

III.

SKETCH OF THE PRINCIPLES AND PRACTICE OF SUBCUTANEOUS SURGERY. 8vo. cloth, 2*s.* 6*d.*

DR. WILLIAM ADDISON, F.R.S.

I.

CELL THERAPEUTICS. 8vo. cloth, 4*s.*

II.

ON HEALTHY AND DISEASED STRUCTURE, AND THE TRUE PRINCIPLES OF TREATMENT FOR THE CURE OF DISEASE, ESPECIALLY CONSUMPTION AND SCROFULA, founded on MICROSCOPICAL ANALYSIS. 8vo. cloth, 12*s.*

DR. ALDIS.

AN INTRODUCTION TO HOSPITAL PRACTICE IN VARIOUS COMPLAINTS; with Remarks on their Pathology and Treatment. 8vo. cloth, 5*s.* 6*d.*

DR. SOMERVILLE SCOTT ALISON, M.D.EDIN., F.R.C.P.

THE PHYSICAL EXAMINATION OF THE CHEST IN PULMONARY CONSUMPTION, AND ITS INTERCURRENT DISEASES. With Engravings. 8vo. cloth, 12*s.*

THE ANATOMICAL REMEMBRANCER; OR, COMPLETE POCKET ANATOMIST. Fifth Edition, carefully Revised. 32mo. cloth, 3*s.* 6*d.*

DR. MCCALL ANDERSON, M.D.

I.

DR. ANDREW ANDERSON, M.D.

TEN LECTURES INTRODUCTORY TO THE STUDY OF FEVER. Post 8vo. cloth, 5*s.*

DR. ARLIDGE.

ON THE STATE OF LUNACY AND THE LEGAL PROVISION FOR THE INSANE; with Observations on the Construction and Organisation of Asylums. 8vo. cloth, 7*s.*

DR. ALEXANDER ARMSTRONG, R.N.

OBSERVATIONS ON NAVAL HYGIENE AND SCURVY. More particularly as the latter appeared during a Polar Voyage. 8vo. cloth, 5*s.*

MR. T. J. ASHTON.

I.

ON THE DISEASES, INJURIES, AND MALFORMATIONS OF THE RECTUM AND ANUS. Fourth Edition. 8vo. cloth, 8*s.*

II.

PROLAPSUS, FISTULA IN ANO, AND HÆMORRHOIDAL AFFECTIONS; their Pathology and Treatment. Second Edition. Post 8vo. cloth, 2*s.* 6*d.*

MR. THOS. J. AUSTIN, M.R.C.S.ENG.

A PRACTICAL ACCOUNT OF GENERAL PARALYSIS: Its Mental and Physical Symptoms, Statistics, Causes, Seat, and Treatment. 8vo. cloth, 6*s.*

DR. THOMAS BALLARD, M.D.

A NEW AND RATIONAL EXPLANATION OF THE DISEASES PECULIAR TO INFANTS AND MOTHERS; with obvious Suggestions for their Prevention and Cure. Post 8vo. cloth, 4*s.* 6*d.*

DR. BARCLAY.

I.

A MANUAL OF MEDICAL DIAGNOSIS. Second Edition. Foolscap 8vo. cloth, 8*s.* 6*d.*

II.

MEDICAL ERRORS.—Fallacies connected with the Application of the Inductive Method of Reasoning to the Science of Medicine. Post 8vo. cloth, 5*s.*

DR. W. G. BARKER.

ON THE CLIMATE OF WORTHING: its Remedial Influence in Disease, especially of the Lungs. Crown 8vo. cloth, 3*s.*

DR. BARLOW.

A MANUAL OF THE PRACTICE OF MEDICINE. Second Edition. Fcap. 8vo. cloth, 12*s.* 6*d.*

DR. BARNES.

THE PHYSIOLOGY AND TREATMENT OF PLACENTA PRÆVIA; being the Lettsomian Lectures on Midwifery for 1857. Post 8vo. cloth, 6*s.*

MR. BARWELL, F.R.C.S.

I.

A TREATISE ON DISEASES OF THE JOINTS. With Engravings. 8vo. cloth, 12*s.*

II.

ON THE CURE OF CLUBFOOT WITHOUT CUTTING

DR. BASHAM.

I.

ON DROPSY, CONNECTED WITH DISEASE OF THE KIDNEYS (MORBUS BRIGHTII), and on some other Diseases of those Organs, associated with Albuminous and Purulent Urine. Illustrated by numerous Drawings from the Microscope. Second Edition. 8vo. cloth, 9*s.*

II.

THE SIGNIFICANCE OF DROPSY AS A SYMPTOM IN RENAL, CARDIAC, AND PULMONARY DISEASES. The Croonian Lectures for 1864. With Plates. 8vo. cloth, 5*s.*

MR. H. F. BAXTER, M.R.C.S.L.

ON ORGANIC POLARITY; showing a Connexion to exist between Organic Forces and Ordinary Polar Forces. Crown 8vo. cloth, 5*s.*

MR. BATEMAN.

MAGNACOPIA: A Practical Library of Profitable Knowledge, communicating the general Minutiæ of Chemical and Pharmaceutic Routine, together with the generality of Secret Forms of Preparations. Third Edition. 18mo. 6*s.*

MR. LIONEL J. BEALE, M.R.C.S.

I.

THE LAWS OF HEALTH IN THEIR RELATIONS TO MIND AND BODY. A Series of Letters from an Old Practitioner to a Patient. Post 8vo. cloth, 7*s.* 6*d.*

II.

HEALTH AND DISEASE, IN CONNECTION WITH THE GENERAL PRINCIPLES OF HYGIENE. Fcap. 8vo., 2*s.* 6*d.*

DR. BEALE, F.R.S.

I.

URINE, URINARY DEPOSITS, AND CALCULI: and on the Treatment of Urinary Diseases. Numerous Engravings. Second Edition, much Enlarged. Post 8vo. cloth, 8*s.* 6*d.*

II.

THE MICROSCOPE, IN ITS APPLICATION TO PRACTICAL MEDICINE. With a Coloured Plate, and 270 Woodcuts. Second Edition. 8vo. cloth, 14*s.*

III.

ILLUSTRATIONS OF THE SALTS OF URINE, URINARY DEPOSITS, and CALCULI. 37 Plates, containing upwards of 170 Figures copied from Nature, with descriptive Letterpress. 8vo. cloth, 9*s.* 6*d.*

MR. BEASLEY.

I.

THE BOOK OF PRESCRIPTIONS; containing 3000 Prescriptions. Collected from the Practice of the most eminent Physicians and Surgeons, English and Foreign. Third Edition. 18mo. cloth, 6*s.*

II.

THE DRUGGIST'S GENERAL RECEIPT-BOOK: comprising a copious Veterinary Formulary and Table of Veterinary Materia Medica; Patent and Proprietary Medicines, Druggists' Nostrums, &c.; Perfumery, Skin Cosmetics, Hair Cosmetics, and Teeth Cosmetics; Beverages, Dietetic Articles, and Condiments; Trade Chemicals, Miscellaneous Preparations and Compounds used in the Arts, &c.; with useful Memoranda and Tables. Fifth Edition. 18mo. cloth, 6*s.*

DR. HENRY BENNET.

I.

A PRACTICAL TREATISE ON INFLAMMATION AND OTHER DISEASES OF THE UTERUS. Fourth Edition, revised, with Additions. 8vo. cloth, 16*s.*

II.

A REVIEW OF THE PRESENT STATE OF UTERINE PATHOLOGY. 8vo. cloth, 4*s.*

III.

NUTRITION IN HEALTH AND DISEASE. Post 8vo. cloth, 5*s.*

IV.

MENTONE, THE RIVIERA, CORSICA, AND BIARRITZ, AS WINTER CLIMATES. Second Edition. Post 8vo. cloth, 5*s.*

PROFESSOR BENTLEY, F.L.S.

A MANUAL OF BOTANY. With nearly 1,200 Engravings on Wood. Fcap. 8vo. cloth, 12*s.* 6*d.*

DR. BERNAYS.

NOTES FOR STUDENTS IN CHEMISTRY; being a Syllabus compiled from the Manuals of Miller, Fownes, Berzelius, Gerhardt, Gorup-Besanez, &c. Fourth Edition. Fscap. 8vo. cloth, 3*s.*

MR. HENRY HEATHER BIGG.

I.

THE MECHANICAL APPLIANCES NECESSARY FOR THE TREATMENT OF DEFORMITIES.

PART I.—The Lower Limbs. Post 8vo. cloth, 4*s.*

PART II.—The Spine and Upper Extremities. Post 8vo. cloth, 4*s.* 6*d.*

II.

ARTIFICIAL LIMBS; THEIR CONSTRUCTION AND APPLICATION. With Engravings on Wood. 8vo. cloth, 3*s.*

DR. BILLING, F.R.S.

ON DISEASES OF THE LUNGS AND HEART. 8vo. cloth, 6*s.*

DR. S. B. BIRCH, M.D.

CONSTIPATED BOWELS: the Various Causes and the Rational Means of Cure. Second Edition. Post 8vo. cloth, 3*s.* 6*d.*

DR. GOLDING BIRD, F.R.S.

I.

URINARY DEPOSITS; THEIR DIAGNOSIS, PATHOLOGY, AND THERAPEUTICAL INDICATIONS. With Engravings. Fifth Edition. Edited by E. LLOYD BIRKETT, M.D. Post 8vo. cloth, 10*s.* 6*d.*

II.

ELEMENTS OF NATURAL PHILOSOPHY; being an Experimental Introduction to the Study of the Physical Sciences. With numerous Engravings. Fifth Edition. Edited by CHARLES BROOKE, M.B. Cantab., F.R.S. Fcap. 8vo. cloth, 12*s.* 6*d.*

MR. BISHOP, F.R.S.

I.

ON DEFORMITIES OF THE HUMAN BODY

MR. P. HINCKES BIRD, F.R.C.S.

PRACTICAL TREATISE ON THE DISEASES OF CHILDREN AND INFANTS AT THE BREAST. Translated from the French of M. Bouchut, with Notes and Additions. 8vo. cloth. 20*s.*

MR. JOHN E. BOWMAN, & MR. C. L. BLOXAM.

I.

PRACTICAL CHEMISTRY, including Analysis. With numerous Illustrations on Wood. Fourth Edition. Foolscap 8vo. cloth, 6*s.* 6*d.*

II.

MEDICAL CHEMISTRY; with Illustrations on Wood. Fourth Edition, carefully revised. Fcap. 8vo. cloth, 6*s.* 6*d.*

DR. JAMES BRIGHT.

ON DISEASES OF THE HEART, LUNGS, & AIR PASSAGES; with a Review of the several Climates recommended in these Affections. Third Edition. Post 8vo. cloth, 9*s.*

DR. BRINTON, F.R.S.

I.

THE DISEASES OF THE STOMACH, with an Introduction on its Anatomy and Physiology; being Lectures delivered at St. Thomas's Hospital. Second Edition. 8vo. cloth, 10*s.* 6*d.*

II.

THE SYMPTOMS, PATHOLOGY, AND TREATMENT OF ULCER OF THE STOMACH. Post 8vo. cloth, 5*s.*

MR. BERNARD E. BRODHURST, F.R.C.S.

I.

CURVATURES OF THE SPINE: their Causes, Symptoms, Pathology, and Treatment. Second Edition. Roy. 8vo. cloth, with Engravings, 7*s.* 6*d.*

II.

ON THE NATURE AND TREATMENT OF CLUBFOOT AND ANALOGOUS DISTORTIONS involving the TIBIO-TARSAL ARTICULATION. With Engravings on Wood. 8vo. cloth, 4*s.* 6*d.*

III.

PRACTICAL OBSERVATIONS ON THE DISEASES OF THE JOINTS INVOLVING ANCHYLOSIS, and on the TREATMENT for the RESTORATION of MOTION. Third Edition, much enlarged, 8vo. cloth, 4*s.* 6*d.*

MR. THOMAS BRYANT, F.R.C.S.

I.

ON THE DISEASES AND INJURIES OF THE JOINTS. CLINICAL AND PATHOLOGICAL OBSERVATIONS. Post 8vo. cloth, 7*s.* 6*d.*

II.

THE SURGICAL DISEASES OF CHILDREN. The Lettsomian Lectures, delivered March, 1863. Post 8vo. cloth, 5*s.*

DR. BUCKLE, M.D., L.R.C.P.LOND.

VITAL AND ECONOMICAL STATISTICS OF THE HOSPITALS, INFIRMARIES, &c., OF ENGLAND AND WALES. Royal 8vo. 5*s.*

DR. BUDD, F.R.S.

I.

ON DISEASES OF THE LIVER.

Illustrated with Coloured Plates and Engravings on Wood. Third Edition. 8vo. cloth, 16*s.*

II.

ON THE ORGANIC DISEASES AND FUNCTIONAL DISORDERS OF THE STOMACH. 8vo. cloth, 9*s.*

DR. JOHN CHARLES BUCKNILL, & DR. DANIEL H. TUKE.

A MANUAL OF PSYCHOLOGICAL MEDICINE: containing the History, Nosology, Description, Statistics, Diagnosis, Pathology, and Treatment of Insanity. Second Edition. 8vo. cloth, 15*s.*

MR. CALLENDER, F.R.C.S.

FEMORAL RUPTURE: Anatomy of the Parts concerned. With Plates. 8vo. cloth, 4*s.*

DR. JOHN M. CAMPLIN, F.L.S.

ON DIABETES, AND ITS SUCCESSFUL TREATMENT.

Third Edition, by Dr. Glover. Fcap. 8vo. cloth, 3*s.* 6*d.*

MR. ROBERT B. CARTER, M.R.C.S.

I.

ON THE INFLUENCE OF EDUCATION AND TRAINING IN PREVENTING DISEASES OF THE NERVOUS SYSTEM. Fcap. 8vo., 6*s.*

II.

THE PATHOLOGY AND TREATMENT OF HYSTERIA. Post 8vo. cloth, 4*s.* 6*d.*

DR. CARPENTER, F.R.S.

I.

PRINCIPLES OF HUMAN PHYSIOLOGY. With numerous Illustrations on Steel and Wood. Sixth Edition. Edited by Mr. HENRY POWER. 8vo. cloth, 26*s.*

II.

PRINCIPLES OF COMPARATIVE PHYSIOLOGY. Illustrated with 300 Engravings on Wood. Fourth Edition. 8vo. cloth, 24*s.*

III.

A MANUAL OF PHYSIOLOGY. With 252 Illustrations on Steel and Wood. Fourth Edition. Fcap. 8vo. cloth, 12*s.* 6*d.*

IV.

THE MICROSCOPE AND ITS REVELATIONS. With numerous Engravings on Steel and Wood. Third Edition. Fcap. 8vo. cloth, 12*s.* 6*d.*

DR. CHAMBERS.

I.

LECTURES CHIEFLY CLINICAL. Third Edition, much enlarged. 8vo. cloth, 14*s.*

II.

DIGESTION AND ITS DERANGEMENTS. Post 8vo. cloth, 10*s.* 6*d.*

MR. H. T. CHAPMAN, F.R.C.S.

I.

THE TREATMENT OF OBSTINATE ULCERS AND CUTANEOUS ERUPTIONS OF THE LEG WITHOUT CONFINEMENT. Third Edition. Post 8vo. cloth, 3*s*. 6*d*.

II.

VARICOSE VEINS: their Nature, Consequences, and Treatment, Palliative and Curative. Second Edition. Post 8vo. cloth, 3*s*. 6*d*.

MR. PYE HENRY CHAVASSE, F.R.C.S.

I.

ADVICE TO A MOTHER ON THE MANAGEMENT OF HER OFFSPRING. Seventh Edition. Foolscap 8vo., 2*s*. 6*d*.

II.

ADVICE TO A WIFE ON THE MANAGEMENT OF HER OWN HEALTH. With an Introductory Chapter, especially addressed to a Young Wife. Sixth Edition. Fcap. 8vo., 2*s*. 6*d*.

MR. LE GROS CLARK, F.R.C.S.

OUTLINES OF SURGERY; being an Epitome of the Lectures on the Principles and the Practice of Surgery, delivered at St. Thomas's Hospital. Fcap. 8vo. cloth, 5*s*.

MR. JOHN CLAY, M.R.C.S.

KIWISCH ON DISEASES OF THE OVARIES: Translated, by permission, from the last German Edition of his Clinical Lectures on the Special Pathology and Treatment of the Diseases of Women. With Notes, and an Appendix on the Operation of Ovariotomy. Royal 12mo. cloth, 16*s*.

MR. COLLIS, M.B.DUB., F.R.C.S.I.

THE DIAGNOSIS AND TREATMENT OF CANCER AND THE TUMOURS ANALOGOUS TO IT. With coloured Plates. 8vo. cloth, 14*s*.

DR. CONOLLY.

THE CONSTRUCTION AND GOVERNMENT OF LUNATIC ASYLUMS AND HOSPITALS FOR THE INSANE. With Plans. Post 8vo. cloth, 6*s*.

MR. COOLEY.

COMPREHENSIVE SUPPLEMENT TO THE PHARMACOPŒIAS.

THE CYCLOPÆDIA OF PRACTICAL RECEIPTS, PROCESSES, AND COLLATERAL INFORMATION IN THE ARTS, MANUFACTURES, PROFESSIONS, AND TRADES, INCLUDING MEDICINE, PHARMACY, AND DOMESTIC ECONOMY; designed as a General Book of Reference for the Manufacturer, Tradesman, Amateur, and Heads of Families. Fourth and greatly enlarged Edition, 8vo. cloth, 28*s*.

MR. W. WHITE COOPER.

I.

ON WOUNDS AND INJURIES OF THE EYE. Illustrated by 17 Coloured Figures and 41 Woodcuts. 8vo. cloth, 12*s*.

SIR ASTLEY COOPER, BART., F.R.S.

ON THE STRUCTURE AND DISEASES OF THE TESTIS. With 24 Plates. Second Edition. Royal 4to., 20s.

MR. COOPER.

A DICTIONARY OF PRACTICAL SURGERY AND ENCYCLOPÆDIA OF SURGICAL SCIENCE. New Edition, brought down to the present time. By Samuel A. Lane, F.R.C.S., assisted by various eminent Surgeons. Vol. I., 8vo. cloth, £1. 5s.

MR. HOLMES COOTE, F.R.C.S.

A REPORT ON SOME IMPORTANT POINTS IN THE TREATMENT OF SYPHILIS. 8vo. cloth, 5s.

DR. COTTON.

I.

ON CONSUMPTION: Its Nature, Symptoms, and Treatment. To which Essay was awarded the Fothergillian Gold Medal of the Medical Society of London. Second Edition. 8vo. cloth, 8s.

II.

PHTHISIS AND THE STETHOSCOPE; OR, THE PHYSICAL SIGNS OF CONSUMPTION. Third Edition. Foolscap 8vo. cloth, 3s.

MR. COULSON.

I.

ON DISEASES OF THE BLADDER AND PROSTATE GLAND. New Edition, revised. *In Preparation.*

II.

ON LITHOTRITY AND LITHOTOMY; with Engravings on Wood. 8vo. cloth, 8s.

MR. WILLIAM CRAIG, L.F.P.S., GLASGOW.

ON THE INFLUENCE OF VARIATIONS OF ELECTRIC TENSION AS THE REMOTE CAUSE OF EPIDEMIC AND OTHER DISEASES. 8vo. cloth, 10s.

MR. CURLING, F.R.S.

I.

OBSERVATIONS ON DISEASES OF THE RECTUM. Third Edition. 8vo. cloth, 7s. 6d.

II.

A PRACTICAL TREATISE ON DISEASES OF THE TESTIS, SPERMATIC CORD, AND SCROTUM. Second Edition, with Additions. 8vo. cloth, 14s.

DR. DALRYMPLE, M.R.C.P., F.R.C.S.

THE CLIMATE OF EGYPT: METEOROLOGICAL AND MEDICAL OBSERVATIONS, with Practical Hints for Invalid Travellers. Post 8vo. cloth, 4s.

MR. JOHN DALRYMPLE, F.R.S., F.R.C.S.

PATHOLOGY OF THE HUMAN EYE. Complete in Nine Fasciculi: Imperial 4to., 20s. each; half-bound morocco, gilt tops, 9l. 15s.

DR. DAVEY.

I.

THE GANGLIONIC NERVOUS SYSTEM: its Structure, Functions, and Diseases. 8vo. cloth, 9*s.*

II.

ON THE NATURE AND PROXIMATE CAUSE OF INSANITY. Post 8vo. cloth, 3*s.*

MR. DIXON.

A GUIDE TO THE PRACTICAL STUDY OF DISEASES OF THE EYE. Second Edition. Post 8vo. cloth, 9*s.*

DR. DOBELL.

I.

DEMONSTRATIONS OF DISEASES IN THE CHEST, AND THEIR PHYSICAL DIAGNOSIS. With Coloured Plates. 8vo. cloth, 12*s.* 6*d.*

II.

LECTURES ON THE GERMS AND VESTIGES OF DISEASE, and on the Prevention of the Invasion and Fatality of Disease by Periodical Examinations. 8vo. cloth, 6*s.* 6*d.*

III.

A MANUAL OF DIET AND REGIMEN FOR PHYSICIAN AND PATIENT. Third Edition (for the year 1865). Crown 8vo. cloth, 1*s.* 6*d.*

DR. TOOGOOD DOWNING.

NEURALGIA: its various Forms, Pathology, and Treatment. THE JACKSONIAN PRIZE ESSAY FOR 1850. 8vo. cloth, 10*s.* 6*d.*

DR. DRUITT, F.R.C.S.

THE SURGEON'S VADE-MECUM; with numerous Engravings on Wood. Ninth Edition. Foolscap 8vo. cloth, 12*s.* 6*d.*

MR. DUNN, F.R.C.S.

AN ESSAY ON PHYSIOLOGICAL PSYCHOLOGY. 8vo. cloth, 4*s.*

SIR JAMES EYRE, M.D.

I.

THE STOMACH AND ITS DIFFICULTIES. Fifth Edition. Fcap. 8vo. cloth, 2*s.* 6*d.*

II.

PRACTICAL REMARKS ON SOME EXHAUSTING DISEASES. Second Edition. Post 8vo. cloth, 4*s.* 6*d.*

DR. FENWICK.

ON SCROFULA AND CONSUMPTION. Clergyman's Sore Throat, Catarrh, Croup, Bronchitis, Asthma. Fcap. 8vo., 2*s.* 6*d.*

MR. FERGUSSON, F.R.S.

A SYSTEM OF PRACTICAL SURGERY; with numerous Illustrations on Wood. Fourth Edition. Fcap. 8vo. cloth, 12*s.* 6*d.*

SIR JOHN FIFE, F.R.C.S. AND MR. URQUHART.

MANUAL OF THE TURKISH BATH. Heat a Mode of Cure and a Source of Strength for Men and Animals. With Engravings. Post 8vo. cloth, 5*s.*

MR. FOWNES, PH.D., F.R.S.

I.

A MANUAL OF CHEMISTRY; with 187 Illustrations on Wood. Ninth Edition. Fcap. 8vo. cloth, 12*s*. 6*d*.

Edited by H. Bence Jones, M.D., F.R.S., and A. W. Hofmann, Ph.D., F.R.S.

II.

CHEMISTRY, AS EXEMPLIFYING THE WISDOM AND BENEFICENCE OF GOD. Second Edition. Fcap. 8vo. cloth, 4*s*. 6*d*.

III.

INTRODUCTION TO QUALITATIVE ANALYSIS. Post 8vo. cloth, 2*s*.

DR. D. J. T. FRANCIS.

CHANGE OF CLIMATE; considered as a Remedy in Dyspeptic, Pulmonary, and other Chronic Affections; with an Account of the most Eligible Places of Residence for Invalids, at different Seasons of the Year. Post 8vo. cloth, 8*s*. 6*d*.

DR. W. FRAZER.

ELEMENTS OF MATERIA MEDICA; containing the Chemistry and Natural History of Drugs—their Effects, Doses, and Adulterations. Second Edition. 8vo. cloth, 10*s*. 6*d*.

MR. J. G. FRENCH, F.R.C.S.

THE NATURE OF CHOLERA INVESTIGATED. Second Edition. 8vo. cloth, 4*s*.

C. REMIGIUS FRESENIUS.

A SYSTEM OF INSTRUCTION IN CHEMICAL ANALYSIS, Edited by Lloyd Bullock, F.C.S.

Qualitative. Sixth Edition, with Coloured Plate illustrating Spectrum Analysis. 8vo. cloth, 10*s*. 6*d*.——Quantitative. Third Edition. 8vo. cloth, 16*s*.

DR. FULLER.

I.

ON DISEASES OF THE CHEST, including Diseases of the Heart and Great Vessels. With Engravings. 8vo. cloth, 12*s*. 6*d*.

II.

ON DISEASES OF THE HEART AND GREAT VESSELS. 8vo. cloth, 7*s*. 6*d*.

III.

ON RHEUMATISM, RHEUMATIC GOUT, AND SCIATICA: their Pathology, Symptoms, and Treatment. Third Edition. 8vo. cloth, 12*s*. 6*d*.

DR. GAIRDNER.

ON GOUT; its History, its Causes, and its Cure. Fourth Edition. Post 8vo. cloth, 8*s*. 6*d*.

MR. GALLOWAY.

I.

THE FIRST STEP IN CHEMISTRY. Third Edition. Fcap. 8vo. cloth, 5*s*.

II.

THE SECOND STEP IN CHEMISTRY; or, the Student's Guide to the Higher Branches of the Science. With Engravings. 8vo. cloth, 10*s*.

III.

MR. F. J. GANT, F.R.C.S.

I.

THE PRINCIPLES OF SURGERY: Clinical, Medical, and Operative. With Engravings. 8vo. cloth, 18*s*.

II.

THE IRRITABLE BLADDER: its Causes and Curative Treatment. Post 8vo. cloth, 4*s*. 6*d*.

DR. GIBB, M.R.C.P.

ON DISEASES OF THE THROAT AND WINDPIPE, as reflected by the Laryngoscope. Second Edition. With 116 Engravings. Post 8vo. cloth, 10*s*. 6*d*.

MRS. GODFREY.

ON THE NATURE, PREVENTION, TREATMENT, AND CURE OF SPINAL CURVATURES and DEFORMITIES of the CHEST and LIMBS, without ARTIFICIAL SUPPORTS or any MECHANICAL APPLIANCES. Third Edition, Revised and Enlarged. 8vo. cloth, 5*s*.

DR. GORDON, M.D., C.B.

CHINA, FROM A MEDICAL POINT OF VIEW, IN 1860 AND 1861; With a Chapter on Nagasaki as a Sanatarium. With Plans. 8vo. cloth, 10*s*. 6*d*.

DR. GRANVILLE, F.R.S.

I.

THE MINERAL SPRINGS OF VICHY: their Efficacy in the Treatment of Gout, Indigestion, Gravel, &c. 8vo. cloth, 3*s*.

II.

ON SUDDEN DEATH. Post 8vo., 2*s*. 6*d*.

DR. GRAVES, M.D., F.R.S.

STUDIES IN PHYSIOLOGY AND MEDICINE. Edited by Dr. Stokes. With Portrait and Memoir. 8vo. cloth, 14*s*.

MR. GRIFFITHS.

CHEMISTRY OF THE FOUR SEASONS—Spring, Summer, Autumn, Winter. Illustrated with Engravings on Wood. Second Edition. Foolscap 8vo. cloth, 7*s*. 6*d*.

DR. GULLY.

THE SIMPLE TREATMENT OF DISEASE; deduced from the Methods of Expectancy and Revulsion. 18mo. cloth, 4*s*.

DR. GUY AND DR. JOHN HARLEY.

HOOPER'S PHYSICIAN'S VADE-MECUM; OR, MANUAL OF THE PRINCIPLES AND PRACTICE OF PHYSIC. Seventh Edition, considerably enlarged, and rewritten. Foolscap 8vo. cloth, 12*s*. 6*d*.

GUY'S HOSPITAL REPORTS. Third Series. Vols. I. to X., 8vo., 7*s*. 6*d*. each.

DR. HABERSHON, F.R.C.P.

I.

DR. C. RADCLYFFE HALL.

TORQUAY IN ITS MEDICAL ASPECT AS A RESORT FOR PULMONARY INVALIDS.
Post 8vo. cloth, 5*s.*

DR. MARSHALL HALL, F.R.S.

I.

PRONE AND POSTURAL RESPIRATION IN DROWNING AND OTHER FORMS OF APNŒA OR SUSPENDED RESPIRATION.
Post 8vo. cloth. 5*s.*

II.

PRACTICAL OBSERVATIONS AND SUGGESTIONS IN MEDICINE.
Second Series. Post 8vo. cloth, 8*s.* 6*d.*

MR. HARDWICH.

A MANUAL OF PHOTOGRAPHIC CHEMISTRY.
With Engravings. Seventh Edition. Foolscap 8vo. cloth, 7*s.* 6*d.*

DR. J. BOWER HARRISON, M.D., M.R.C.P.

I.

LETTERS TO A YOUNG PRACTITIONER ON THE DISEASES OF CHILDREN.
Foolscap 8vo. cloth, 3*s.*

II.

ON THE CONTAMINATION OF WATER BY THE POISON OF LEAD,
and its Effects on the Human Body. Foolscap 8vo. cloth, 3*s.* 6*d.*

DR. HARTWIG.

I.

ON SEA BATHING AND SEA AIR.
Second Edition. Fcap. 8vo., 2*s.* 6*d.*

II.

ON THE PHYSICAL EDUCATION OF CHILDREN.
Fcap. 8vo., 2*s.* 6*d.*

DR. A. H. HASSALL.

I.

THE URINE, IN HEALTH AND DISEASE;
being an Explanation of the Composition of the Urine, and of the Pathology and Treatment of Urinary and Renal Disorders. Second Edition. With 79 Engravings (23 Coloured). Post 8vo. cloth, 12*s.* 6*d.*

II.

THE MICROSCOPIC ANATOMY OF THE HUMAN BODY, IN HEALTH AND DISEASE.
Illustrated with Several Hundred Drawings in Colour. Two vols. 8vo. cloth, £1. 10*s.*

MR. ALFRED HAVILAND, M.R.C.S.

CLIMATE, WEATHER, AND DISEASE;
being a Sketch of the Opinions of the most celebrated Ancient and Modern Writers with regard to the Influence of Climate and Weather in producing Disease. With Four coloured Engravings. 8vo. cloth, 7*s.*

DR. HEADLAND.

ON THE ACTION OF MEDICINES IN THE SYSTEM.
Being the Prize Essay to which the Medical Society of London awarded the Fothergillian Gold Medal for 1852. Third Edition. 8vo. cloth, 12*s.* 6*d.*

DR. HEALE.

MR. CHRISTOPHER HEATH, F.R.C.S.

I.

PRACTICAL ANATOMY: a Manual of Dissections. With numerous Engravings. Fcap. 8vo. cloth, 10*s.* 6*d.*

II.

A MANUAL OF MINOR SURGERY AND BANDAGING, FOR THE USE OF HOUSE-SURGEONS, DRESSERS, AND JUNIOR PRACTITIONERS. With Illustrations. Second Edition. Fcap. 8vo. cloth, 5*s.*

MR. HIGGINBOTTOM, F.R.S., F.R.C.S.E.

ON THE NITRATE OF SILVER: WITH FULL DIRECTIONS FOR ITS APPLICATION IN THE TREATMENT OF INFLAMMATION, WOUNDS, AND ULCERS. Part I., Second Edition, 5*s.*; Part II., 2*s.* 6*d.*

DR. HINDS.

THE HARMONIES OF PHYSICAL SCIENCE IN RELATION TO THE HIGHER SENTIMENTS; with Observations on Medical Studies, and on the Moral and Scientific Relations of Medical Life. Post 8vo. cloth, 4*s.*

MR. J. A. HINGESTON, M.R.C.S.

TOPICS OF THE DAY, MEDICAL, SOCIAL, AND SCIENTIFIC. Crown 8vo. cloth, 7*s.* 6*d.*

DR. HODGES.

THE NATURE, PATHOLOGY, AND TREATMENT OF PUERPERAL CONVULSIONS. Crown 8vo. cloth, 3*s.*

DR. DECIMUS HODGSON.

THE PROSTATE GLAND, AND ITS ENLARGEMENT IN OLD AGE. With 12 Plates. Royal 8vo. cloth, 6*s.*

MR. JABEZ HOGG.

A MANUAL OF OPHTHALMOSCOPIC SURGERY; being a Practical Treatise on the Use of the Ophthalmoscope in Diseases of the Eye. Third Edition. With Coloured Plates. 8vo. cloth, 10*s.* 6*d.*

MR. LUTHER HOLDEN, F.R.C.S.

I.

HUMAN OSTEOLOGY: with Plates, showing the Attachments of the Muscles. Third Edition. 8vo. cloth, 16*s.*

II.

A MANUAL OF THE DISSECTION OF THE HUMAN BODY. With Engravings on Wood. Second Edition. 8vo. cloth, 16*s.*

MR BARNARD HOLT, F.R.C.S.

ON THE IMMEDIATE TREATMENT OF STRICTURE OF THE URETHRA. Second Edition, Enlarged. 8vo. cloth, 3*s.*

MR. C. HOLTHOUSE.

I

DR. W. CHARLES HOOD.

SUGGESTIONS FOR THE FUTURE PROVISION OF CRIMINAL LUNATICS. 8vo. cloth, 5*s*. 6*d*.

DR. P. HOOD.

THE SUCCESSFUL TREATMENT OF SCARLET FEVER; also, OBSERVATIONS ON THE PATHOLOGY AND TREATMENT OF CROWING INSPIRATIONS OF INFANTS. Post 8vo. cloth, 5*s*.

MR. JOHN HORSLEY.

A CATECHISM OF CHEMICAL PHILOSOPHY; being a Familiar Exposition of the Principles of Chemistry and Physics. With Engravings on Wood. Designed for the Use of Schools and Private Teachers. Post 8vo. cloth, 6*s*. 6*d*.

MR. LUKE HOWARD, F.R.S.

ESSAY ON THE MODIFICATIONS OF CLOUDS. Third Edition, by W. D. and E. Howard. With 6 Lithographic Plates, from Pictures by Kenyon. 4to. cloth, 10*s*. 6*d*.

DR. HUFELAND.

THE ART OF PROLONGING LIFE. Second Edition. Edited by Erasmus Wilson, F.R.S. Foolscap 8vo., 2*s*. 6*d*.

MR. W. CURTIS HUGMAN, F.R.C.S.

ON HIP-JOINT DISEASE; with reference especially to Treatment by Mechanical Means for the Relief of Contraction and Deformity of the Affected Limb. 8vo. cloth, 3*s*. 6*d*.

MR. HULKE, F.R.C.S.

A PRACTICAL TREATISE ON THE USE OF THE OPHTHALMOSCOPE. Being the Jacksonian Prize Essay for 1859. Royal 8vo. cloth, 8*s*.

DR. HENRY HUNT.

ON HEARTBURN AND INDIGESTION. 8vo. cloth, 5*s*.

PROFESSOR HUXLEY, F.R.S.

LECTURES ON THE ELEMENTS OF COMPARATIVE ANATOMY.—ON CLASSIFICATON AND THE SKULL. With 111 Illustrations. 8vo. cloth, 10*s*. 6*d*.

MR. JONATHAN HUTCHINSON, F.R.C.S.

A CLINICAL MEMOIR ON CERTAIN DISEASES OF THE EYE AND EAR, CONSEQUENT ON INHERITED SYPHILIS; with an appended Chapter of Commentaries on the Transmission of Syphilis from Parent to Offspring, and its more remote Consequences. With Plates and Woodcuts, 8vo. cloth, 9*s*.

DR. INMAN, M.R.C.P.

I.

ON MYALGIA: ITS NATURE, CAUSES, AND TREATMENT; being a Treatise on Painful and other Affections of the Muscular System. Second Edition. 8vo. cloth, 9*s*.

II.

FOUNDATION FOR A NEW THEORY AND PRACTICE OF MEDICINE. Second Edition. Crown 8vo. cloth, 10*s*.

DR. JAGO, M.D.OXON., A.B.CANTAB.

ENTOPTICS, WITH ITS USES IN PHYSIOLOGY AND MEDICINE. With 54 Engravings. Crown 8vo. cloth, 5*s.*

MR. J. H. JAMES, F.R.C.S.

PRACTICAL OBSERVATIONS ON THE OPERATIONS FOR STRANGULATED HERNIA. 8vo. cloth, 5*s.*

DR. PROSSER JAMES, M.D.

SORE-THROAT: ITS NATURE, VARIETIES, AND TREATMENT; including the Use of the LARYNGOSCOPE as an Aid to Diagnosis. Post 8vo. cloth, 4*s.* 6*d.*

DR. HANDFIELD JONES, M.B., F.R.C.P.

CLINICAL OBSERVATIONS ON FUNCTIONAL NERVOUS DISORDERS. Post 8vo. cloth, 10*s.* 6*d.*

DR. HANDFIELD JONES, F.R.S., & DR. EDWARD H. SIEVEKING.

A MANUAL OF PATHOLOGICAL ANATOMY. Illustrated with numerous Engravings on Wood. Foolscap 8vo. cloth, 12*s.* 6*d.*

DR. JAMES JONES, M.D., M.R.C.P.

ON THE USE OF PERCHLORIDE OF IRON AND OTHER CHALYBEATE SALTS IN THE TREATMENT OF CONSUMPTION. Crown 8vo. cloth, 3*s.* 6*d.*

MR. WHARTON JONES, F.R.S.

I.

A MANUAL OF THE PRINCIPLES AND PRACTICE OF OPHTHALMIC MEDICINE AND SURGERY; illustrated with Engravings, plain and coloured. Second Edition. Foolscap 8vo. cloth, 12*s.* 6*d.*

II.

THE WISDOM AND BENEFICENCE OF THE ALMIGHTY, AS DISPLAYED IN THE SENSE OF VISION; being the Actonian Prize Essay for 1851. With Illustrations on Steel and Wood. Foolscap 8vo. cloth, 4*s.* 6*d.*

III.

DEFECTS OF SIGHT: their Nature, Causes, Prevention, and General Management. Fcap. 8vo. 2*s.* 6*d.*

IV.

A CATECHISM OF THE MEDICINE AND SURGERY OF THE EYE AND EAR. For the Clinical Use of Hospital Students. Fcap. 8vo. 2*s.* 6*d.*

V.

A CATECHISM OF THE PHYSIOLOGY AND PHILOSOPHY OF BODY, SENSE, AND MIND. For Use in Schools and Colleges. Fcap. 8vo., 2*s.* 6*d.*

MR. FURNEAUX JORDAN, M.R.C.S.

AN INTRODUCTION TO CLINICAL SURGERY; WITH A Method of Investigating and Reporting Surgical Cases. Fcap. 8vo. cloth, 5*s.*

MR. JUDD.

A PRACTICAL TREATISE ON URETHRITIS AND SYPHILIS: including Observations on the Power of the Menstruous Fluid, and of the Discharge from Leucorrhœa and Sores to produce Urethritis: with a variety of Examples, Experiments, Remedies, and Cures. 8vo. cloth, £1. 5*s.*

DR. LAENNEC.

A MANUAL OF AUSCULTATION AND PERCUSSION. Translated and Edited by J. B. SHARPE, M.R.C.S. 3*s.*

DR. LANE, M.A.

HYDROPATHY; OR, HYGIENIC MEDICINE. An Explanatory Essay. Second Edition. Post 8vo. cloth, 5*s.*

MR. LAWRENCE, F.R.S.

I.

LECTURES ON SURGERY. 8vo. cloth, 16*s.*

II.

A TREATISE ON RUPTURES. The Fifth Edition, considerably enlarged. 8vo. cloth, 16*s.*

DR. LEARED, M.R.C.P.

IMPERFECT DIGESTION: ITS CAUSES AND TREATMENT. Third Edition. Foolscap 8vo. cloth, 4*s.*

DR. EDWIN LEE.

I.

THE EFFECT OF CLIMATE ON TUBERCULOUS DISEASE, with Notices of the chief Foreign Places of Winter Resort. Small 8vo. cloth, 4*s.* 6*d.*

II.

THE WATERING PLACES OF ENGLAND, CONSIDERED with Reference to their Medical Topography. Fourth Edition. Fcap. 8vo. cloth, 7*s.* 6*d.*

III.

THE BATHS OF GERMANY. Fourth Edition. Post 8vo. cloth, 7*s.*

IV.

HOMŒOPATHY AND HYDROPATHY IMPARTIALLY APPRECIATED. With Notes illustrative of the Influence of the Mind over the Body. Fourth Edition. Post 8vo. cloth, 3*s.* 6*d.*

MR. HENRY LEE, F.R.C.S.

ON SYPHILIS. Second Edition. With Coloured Plates. 8vo. cloth, 10*s.*

DR. ROBERT LEE, F.R.S.

I.

CONSULTATIONS IN MIDWIFERY. Foolscap 8vo. cloth, 4*s.* 6*d.*

II.

A TREATISE ON THE SPECULUM; with Three Hundred Cases. 8vo. cloth, 4*s.* 6*d.*

III.

CLINICAL REPORTS OF OVARIAN AND UTERINE DISEASES, with Commentaries. Foolscap 8vo. cloth, 6*s.* 6*d.*

IV.

CLINICAL MIDWIFERY: comprising the Histories of 545 Cases of Difficult, Preternatural, and Complicated Labour, with Commentaries. Second Edition. Foolscap 8vo. cloth, 5*s.*

V.

PRACTICAL OBSERVATIONS ON DISEASES OF THE UTERUS. With coloured Plates. Two Parts. Imperial 4to., 7*s.* 6*d.* each Part.

DR. LEISHMAN, M.D., F.F.P.S.

THE MECHANISM OF PARTURITION: An Essay, Historical and Critical. With Engravings. 8vo. cloth, 5*s.*

MR. LISTON, F.R.S.

PRACTICAL SURGERY. Fourth Edition. 8vo. cloth, 22*s.*

MR. H. W. LOBB, L.S.A., M.R.C.S.E.

ON SOME OF THE MORE OBSCURE FORMS OF NERVOUS AFFECTIONS, THEIR PATHOLOGY AND TREATMENT. Re-issue, with the Chapter on Galvanism entirely Re-written. With Engravings. 8vo. cloth, 8*s.*

DR. LOGAN, M.D., M.R.C.P.LOND.

ON OBSTINATE DISEASES OF THE SKIN. Foolscap 8vo. cloth, 2*s.* 6*d.*

LONDON HOSPITAL.

CLINICAL LECTURES AND REPORTS BY THE MEDICAL AND SURGICAL STAFF. With Illustrations. Vol. I. 8vo. cloth, 7*s.* 6*d.*

LONDON MEDICAL SOCIETY OF OBSERVATION.

WHAT TO OBSERVE AT THE BED-SIDE, AND AFTER DEATH. Published by Authority. Second Edition. Foolscap 8vo. cloth, 4*s.* 6*d.*

DR. MACKENZIE, M.D., M.R.C.P.

THE PATHOLOGY AND TREATMENT OF PHLEGMASIA DOLENS, as deduced from Clinical and Physiological Researches. Lettsomian Lectures on Midwifery. 8vo. cloth, 6*s.*

MR. M'CLELLAND, F.L.S., F.G.S.

THE MEDICAL TOPOGRAPHY, OR CLIMATE AND SOILS, OF BENGAL AND THE N. W. PROVINCES. Post 8vo. cloth, 4*s.* 6*d.*

DR. MACLACHLAN, M.D., F.R.C.P.L.

THE DISEASES AND INFIRMITIES OF ADVANCED LIFE. 8vo. cloth, 16*s.*

DR. GEORGE H. B. MACLEOD, F.R.C.S.E.

I.

OUTLINES OF SURGICAL DIAGNOSIS. 8vo. cloth, 12*s.* 6*d.*

II.

NOTES ON THE SURGERY OF THE CRIMEAN WAR; with REMARKS on GUN-SHOT WOUNDS. 8vo. cloth, 10*s.* 6*d.*

MR. JOSEPH MACLISE, F.R.C.S.

I.

SURGICAL ANATOMY. A Series of Dissections, illustrating the Principal Regions of the Human Body.
The Second Edition, imperial folio, cloth, £3. 12*s.*; half-morocco, £4. 4*s.*

II.

ON DISLOCATIONS AND FRACTURES. This Work is Uniform with the Author's "Surgical Anatomy;" each Fasciculus contains Four beautifully executed Lithographic Drawings. Imperial folio, cloth, £2. 10*s.*; half-morocco, £2. 17*s.*

DR. MCNICOLL, M.R.C.P.

A HAND-BOOK FOR SOUTHPORT, MEDICAL & GENERAL; with Copious Notices of the Natural History of the District. Second Edition. Post 8vo. cloth, 3*s.* 6*d.*

DR. MARCET, F.R.S.

I.

ON THE COMPOSITION OF FOOD, AND HOW IT IS ADULTERATED; with Practical Directions for its Analysis. 8vo. cloth,

DR. MARKHAM.

I.

DISEASES OF THE HEART: THEIR PATHOLOGY, DIAGNOSIS, AND TREATMENT. Second Edition. Post 8vo. cloth, 6*s.*

II.

SKODA ON AUSCULTATION AND PERCUSSION. Post 8vo. cloth, 6*s.*

SIR RANALD MARTIN, K.C.B., F.R.S.

INFLUENCE OF TROPICAL CLIMATES IN PRODUCING THE ACUTE ENDEMIC DISEASES OF EUROPEANS; including Practical Observations on their Chronic Sequelæ under the Influences of the Climate of Europe. Second Edition, much enlarged. 8vo. cloth, 20*s.*

DR. MASSY.

ON THE EXAMINATION OF RECRUITS; intended for the Use of Young Medical Officers on Entering the Army. 8vo. cloth, 5*s.*

MR. C. F. MAUNDER, F.R.C.S.

OPERATIVE SURGERY. With 158 Engravings. Post 8vo. 6*s.*

DR. MAYNE.

I.

AN EXPOSITORY LEXICON OF HE TERMS, ANCIENT AND MODERN, IN MEDICAL AND GENERAL SCIENCE, including a complete MEDICAL AND MEDICO-LEGAL VOCABULARY. Complete in 10 Parts, price 5*s.* each. The entire work, cloth, £2. 10*s.*

II.

A MEDICAL VOCABULARY; or, an Explanation of all Names, Synonymes, Terms, and Phrases used in Medicine and the relative branches of Medical Science, intended specially as a Book of Reference for the Young Student. Second Edition. Fcap. 8vo. cloth, 8*s.* 6*d.*

DR. MERYON, M.D., F.R.C.P.

PATHOLOGICAL AND PRACTICAL RESEARCHES ON THE VARIOUS FORMS OF PARALYSIS. 8vo. cloth, 6*s.*

DR. MILLINGEN.

ON THE TREATMENT AND MANAGEMENT OF THE INSANE; with Considerations on Public and Private Lunatic Asylums. 18mo. cloth, 4*s.* 6*d.*

DR. W. J. MOORE, M.D.

I.

HEALTH IN THE TROPICS; or, Sanitary Art applied to Europeans in India. 8vo. cloth, 9*s.*

II.

A MANUAL OF THE DISEASES OF INDIA. Fcap. 8vo. cloth, 5*s.*

PROFESSOR MULDER, UTRECHT.

THE CHEMISTRY OF WINE. Edited by H. BENCE JONES, M.D., F.R.S. Fcap. 8vo. cloth, 6*s.*

DR. NOBLE.

THE HUMAN MIND IN ITS RELATIONS WITH THE BRAIN AND NERVOUS SYSTEM.

Post 8vo. cloth, 4*s*. 6*d*.

MR. NUNNELEY, F.R.C.S.E.

I.

ON THE ORGANS OF VISION: THEIR ANATOMY AND PHYSIOLOGY.

With Plates, 8vo. cloth, 15*s*.

II.

A TREATISE ON THE NATURE, CAUSES, AND TREATMENT OF ERYSIPELAS.

8vo. cloth, 10*s*. 6*d*.

DR. O'REILLY.

THE PLACENTA, THE ORGANIC NERVOUS SYSTEM, THE BLOOD, THE OXYGEN, AND THE ANIMAL NERVOUS SYSTEM, PHYSIOLOGICALLY EXAMINED.

With Engravings. 8vo. cloth, 5*s*.

MR. LANGSTON PARKER.

THE MODERN TREATMENT OF SYPHILITIC DISEASES,

both Primary and Secondary; comprising the Treatment of Constitutional and Confirmed Syphilis, by a safe and successful Method. Fourth Edition, 8vo. cloth, 10*s*.

DR. PARKES, F.R.C.P.

I.

A MANUAL OF PRACTICAL HYGIENE;

intended especially for the Medical Officers of the Army. With Plates and Woodcuts. 8vo. cloth, 16*s*.

II.

THE URINE: ITS COMPOSITION IN HEALTH AND DISEASE, AND UNDER THE ACTION OF REMEDIES.

8vo. cloth, 12*s*.

DR. PARKIN, M.D., F.R.C.S.

THE CAUSATION AND PREVENTION OF DISEASE;

with the Laws regulating the Extrication of Malaria from the Surface, and its Diffusion in the surrounding Air. 8vo. cloth, 5*s*.

MR. JAMES PART, F.R.C.S.

THE MEDICAL AND SURGICAL POCKET CASE BOOK,

for the Registration of important Cases in Private Practice, and to assist the Student of Hospital Practice. Second Edition. 2*s*. 6*d*.

DR. PAVY, M.D., F.R.S., F.R.C.P.

DIABETES: RESEARCHES ON ITS NATURE AND TREATMENT.

8vo. cloth, 8*s*. 6*d*.

DR. THOMAS B. PEACOCK, M.D.

ON THE INFLUENZA, OR EPIDEMIC CATARRHAL FEVER OF 1847-8.

8vo. cloth, 5*s*. 6*d*.

DR. PEET, M.D., F.R.C.P.

THE PRINCIPLES AND PRACTICE OF MEDICINE;

Designed chiefly for Students of Indian Medical Colleges. 8vo. cloth, 16*s*.

DR. PEREIRA, F.R.S.

SELECTA E PRÆSCRIPTIS.

Fourteenth Edition. 24mo. cloth. 5*s*.

MR. PIRRIE, F.R.S.E.

THE PRINCIPLES AND PRACTICE OF SURGERY. With numerous Engravings on Wood. Second Edition. 8vo. cloth, 24*s.*

PHARMACOPŒIA COLLEGII REGALIS MEDICORUM LONDINENSIS. 8vo. cloth, 9*s.*; or 24mo. 5*s.*

IMPRIMATUR.

Hic liber, cui titulus, PHARMACOPŒIA COLLEGII REGALIS MEDICORUM LONDINENSIS.
Datum ex Ædibus Collegii in comitiis censoriis, Novembris Mensis 14^{to} 1850.
JOHANNES AYRTON PARIS. *Præses.*

PROFESSORS PLATTNER & MUSPRATT.

THE USE OF THE BLOWPIPE IN THE EXAMINATION OF MINERALS, ORES, AND OTHER METALLIC COMBINATIONS. Illustrated by numerous Engravings on Wood. Third Edition. 8vo. cloth, 10*s.* 6*d.*

DR. HENRY F. A PRATT, M.D., M.R.C.P.

I.

THE GENEALOGY OF CREATION, newly Translated from the Unpointed Hebrew Text of the Book of Genesis, showing the General Scientific Accuracy of the Cosmogony of Moses and the Philosophy of Creation. 8vo. cloth, 14*s.*

II.

ON ECCENTRIC AND CENTRIC FORCE: A New Theory of Projection. With Engravings. 8vo. cloth, 10*s.*

III.

ON ORBITAL MOTION: The Outlines of a System of Physical Astronomy. With Diagrams. 8vo. cloth, 7*s.* 6*d.*

IV.

ASTRONOMICAL INVESTIGATIONS. The Cosmical Relations of the Revolution of the Lunar Apsides. Oceanic Tides. With Engravings. 8vo. cloth, 5*s.*

THE PRESCRIBER'S PHARMACOPŒIA; containing all the Medicines in the British Pharmacopœia, arranged in Classes according to their Action, with their Composition and Doses. By a Practising Physician. Fifth Edition. 32mo. cloth, 2*s.* 6*d.*; roan tuck (for the pocket), 3*s.* 6*d.*

DR. JOHN ROWLISON PRETTY.

AIDS DURING LABOUR, including the Administration of Chloroform, the Management of Placenta and Post-partum Hæmorrhage. Fcap. 8vo. cloth, 4*s.* 6*d.*

MR. LAKE PRICE.

PHOTOGRAPHIC MANIPULATION: Treating of the Practice of the Art, and its various appliances to Nature. With Fifty Engravings on Wood. Post 8vo. cloth, 6*s.* 6*d.*

DR. PRIESTLEY.

LECTURES ON THE DEVELOPMENT OF THE GRAVID UTERUS. 8vo. cloth, 5*s.* 6*d.*

MR. RAINEY.

ON THE MODE OF FORMATION OF SHELLS OF ANIMALS,

OF BONE, AND OF SEVERAL OTHER STRUCTURES, by a Process of Molecular Coalescence, Demonstrable in certain Artificially-formed Products. Fcap. 8vo. cloth, 4*s*. 6*d*.

DR. F. H. RAMSBOTHAM.

THE PRINCIPLES AND PRACTICE OF OBSTETRIC MEDICINE AND SURGERY.

Illustrated with One Hundred and Twenty Plates on Steel and Wood; forming one thick handsome volume. Fourth Edition. 8vo. cloth, 22*s*.

DR. RAMSBOTHAM.

PRACTICAL OBSERVATIONS ON MIDWIFERY,

with a Selection of Cases. Second Edition. 8vo. cloth, 12*s*.

PROFESSOR REDWOOD, PH. D.

A SUPPLEMENT TO THE PHARMACOPŒIA:

A concise but comprehensive Dispensatory, and Manual of Facts and Formulæ, for the use of Practitioners in Medicine and Pharmacy. Third Edition. 8vo. cloth, 22*s*.

DR. DU BOIS REYMOND.

ANIMAL ELECTRICITY;

Edited by H. Bence Jones, M.D., F.R.S. With Fifty Engravings on Wood. Foolscap 8vo. cloth, 6*s*.

DR. REYNOLDS, M.D.LOND.

I.

EPILEPSY: ITS SYMPTOMS, TREATMENT, AND RELATION TO OTHER CHRONIC CONVULSIVE DISEASES.

8vo. cloth, 10*s*.

II.

THE DIAGNOSIS OF DISEASES OF THE BRAIN, SPINAL CORD, AND THEIR APPENDAGES.

8vo. cloth, 8*s*.

DR. B. W. RICHARDSON.

I.

ON THE CAUSE OF THE COAGULATION OF THE BLOOD.

Being the Astley Cooper Prize Essay for 1856. With a Practical Appendix. 8vo. cloth, 16*s*.

II.

THE HYGIENIC TREATMENT OF PULMONARY CONSUMPTION.

8vo. cloth, 5*s*. 6*d*.

III.

THE ASCLEPIAD.

Vol. I., Clinical Essays. 8vo. cloth, 6*s*. 6*d*.

MR. WILLIAM ROBERTS.

AN ESSAY ON WASTING PALSY;

being a Systematic Treatise on the Disease hitherto described as ATROPHIE MUSCULAIRE PROGRESSIVE. With Four Plates. 8vo. cloth, 7*s*. 6*d*.

DR. W. H. ROBERTSON.

I.

THE NATURE AND TREATMENT OF GOUT.

8vo. cloth, 10*s*. 6*d*.

II.

A TREATISE ON DIET AND REGIMEN.

Fourth Edition. 2 vols. post 8vo. cloth, 12*s*.

DR. ROWE.

NERVOUS DISEASES, LIVER AND STOMACH COMPLAINTS, LOW SPIRITS, INDIGESTION, GOUT, ASTHMA, AND DISORDERS PRODUCED BY TROPICAL CLIMATES. With Cases. Sixteenth Edition. Fcap. 8vo. 2*s*. 6*d*.

DR. ROYLE, F.R.S., AND DR. HEADLAND, M.D.

A MANUAL OF MATERIA MEDICA AND THERAPEUTICS.

With numerous Engravings on Wood. Fourth Edition. Fcap. 8vo. cloth, 12*s*. 6*d*.

MR. RUMSEY, F.R.C.S.

ESSAYS ON STATE MEDICINE. 8vo. cloth, 10*s*. 6*d*.

DR. RYAN, M.D.

INFANTICIDE: ITS LAW, PREVALENCE, PREVENTION, AND HISTORY. 8vo. cloth, 5*s*.

ST. BARTHOLOMEW'S HOSPITAL.

A DESCRIPTIVE CATALOGUE OF THE ANATOMICAL MUSEUM. Vol. I. (1846), Vol. II. (1851), Vol. III. (1862), 8vo. cloth, 5*s*. each.

DR. SALTER, F.R.S.

ON ASTHMA: its Pathology, Causes, Consequences, and Treatment. 8vo. cloth, 10*s*.

DR. SAVAGE, M.D.LOND., F.R.C.S.

THE SURGERY OF THE FEMALE PELVIC ORGANS, in a Series of Plates taken from Nature, with Physiological and Pathological References. Royal 4to. cloth, 20*s*.

*** These Plates give 40 Illustrations taken from original Dissections, and are drawn and coloured in the highest degree of art.

MR. SAVORY.

A COMPENDIUM OF DOMESTIC MEDICINE, AND COMPANION TO THE MEDICINE CHEST; intended as a Source of Easy Reference for Clergymen, and for Families residing at a Distance from Professional Assistance. Seventh Edition. 12mo. cloth, 5*s*.

DR. SCHACHT.

THE MICROSCOPE, AND ITS APPLICATION TO VEGETABLE ANATOMY AND PHYSIOLOGY. Edited by FREDERICK CURREY, M.A. Fcap. 8vo. cloth, 6*s*.

DR. SCORESBY-JACKSON, M.D., F.R.S.E.

MEDICAL CLIMATOLOGY; or, a Topographical and Meteorological Description of the Localities resorted to in Winter and Summer by Invalids of various classes both at Home and Abroad. With an Isothermal Chart. Post 8vo. cloth, 12*s*.

DR. SEYMOUR.

I.

ILLUSTRATIONS OF SOME OF THE PRINCIPAL DISEASES OF THE OVARIA: their Symptoms and Treatment; to which are prefixed Observations on the Structure and Functions of those parts in the Human Being and in Animals. With 14 folio plates, 12*s.*

II.

THE NATURE AND TREATMENT OF DROPSY; considered especially in reference to the Diseases of the Internal Organs of the Body, which most commonly produce it. 8vo. 5*s.*

DR. SHAPTER, M.D., F.R.C.P.

THE CLIMATE OF THE SOUTH OF DEVON, AND ITS INFLUENCE UPON HEALTH. Second Edition, with Maps. 8vo. cloth, 10*s.* 6*d.*

MR. SHAW, M.R.C.S.

THE MEDICAL REMEMBRANCER; OR, BOOK OF EMERGENCIES: in which are concisely pointed out the Immediate Remedies to be adopted in the First Moments of Danger from Drowning, Poisoning, Apoplexy, Burns, and other Accidents; with the Tests for the Principal Poisons, and other useful Information. Fourth Edition. Edited, with Additions, by JONATHAN HUTCHINSON, F.R.C.S. 32mo. cloth, 2*s.* 6*d.*

DR. SHEA, M.D., B.A.

A MANUAL OF ANIMAL PHYSIOLOGY. With an Appendix of Questions for the B.A. London and other Examinations. With Engravings. Foolscap 8vo. cloth, 5*s.* 6*d.*

DR. SIBSON, F.R.S.

MEDICAL ANATOMY. With coloured Plates. Imperial folio. Fasciculi I. to VI. 5*s.* each.

DR. E. H. SIEVEKING.

ON EPILEPSY AND EPILEPTIFORM SEIZURES: their Causes, Pathology, and Treatment. Second Edition. Post 8vo. cloth, 10*s.* 6*d.*

MR. SINCLAIR AND DR. JOHNSTON.

PRACTICAL MIDWIFERY: Comprising an Account of 13,748 Deliveries, which occurred in the Dublin Lying-in Hospital, during a period of Seven Years. 8vo. cloth, 15*s.*

DR. SIORDET, M.B.LOND., M.R.C.P.

MENTONE IN ITS MEDICAL ASPECT. Foolscap 8vo. cloth, 2*s.* 6*d.*

MR. ALFRED SMEE, F.R.S.

GENERAL DEBILITY AND DEFECTIVE NUTRITION; their Causes, Consequences, and Treatment. Second Edition. Fcap. 8vo. cloth, 3*s.* 6*d.*

DR. SMELLIE.

OBSTETRIC PLATES: being a Selection from the more Important and Practical Illustrations contained in the Original Work. With Anatomical and Practical Directions. 8vo. cloth, 5*s.*

MR. HENRY SMITH, F.R.C.S.

I.

ON STRICTURE OF THE URETHRA. 8vo. cloth, 7*s.* 6*d.*

II.

HÆMORRHOIDS AND

DR. J. SMITH, M.D., F.R.C.S.EDIN.

HANDBOOK OF DENTAL ANATOMY AND SURGERY, FOR THE USE OF STUDENTS AND PRACTITIONERS. Fcap. 8vo. cloth, 3*s.* 6*d.*

DR. W. TYLER SMITH.

I.

A MANUAL OF OBSTETRICS, THEORETICAL AND PRACTICAL. Illustrated with 186 Engravings. Fcap. 8vo. cloth, 12*s.* 6*d.*

II.

THE PATHOLOGY AND TREATMENT OF LEUCORRHŒA. With Engravings on Wood. 8vo. cloth, 7*s.*

DR. SNOW.

ON CHLOROFORM AND OTHER ANÆSTHETICS: THEIR ACTION AND ADMINISTRATION. Edited, with a Memoir of the Author, by Benjamin W. Richardson, M.D. 8vo. cloth, 10*s.* 6*d.*

DR. STANHOPE TEMPLEMAN SPEER.

PATHOLOGICAL CHEMISTRY, IN ITS APPLICATION TO THE PRACTICE OF MEDICINE. Translated from the French of MM. Becquerel and Rodier. 8vo. cloth, reduced to 8*s.*

MR. A. B. SQUIRE, M.B.LOND.

COLOURED PHOTOGRAPHS OF SKIN DISEASES. In Twelve Parts (one every month), with Letterpress, 3*s.* 6*d.* each.

No. I. PSORIASIS.
„ II. IMPETIGO.
„ III. LICHEN.
No. IV. SCABIES.
„ V. CHLOASMA.
„ VI. FAVUS.
No. VII. LUPUS.
„ VIII. SYPHILIDE.
„ IX. NÆVUS.

MR. PETER SQUIRE.

I.

A COMPANION TO THE BRITISH PHARMACOPÆIA. Second Edition. 8vo. cloth, 8*s.* 6*d.*

II.

THE PHARMACOPÆIAS OF THIRTEEN OF THE LONDON HOSPITALS, arranged in Groups for easy Reference and Comparison. 18mo. cloth, 3*s.* 6*d.*

DR. STEGGALL.

STUDENTS' BOOKS FOR EXAMINATION.

I.

A MEDICAL MANUAL FOR APOTHECARIES' HALL AND OTHER MEDICAL BOARDS. Twelfth Edition. 12mo. cloth, 10*s.*

II.

A MANUAL FOR THE COLLEGE OF SURGEONS; intended for the Use of Candidates for Examination and Practitioners. Second Edition. 12mo. cloth, 10*s.*

III.

GREGORY'S CONSPECTUS MEDICINÆ THEORETICÆ. The First Part, containing the Original Text, with an Ordo Verborum, and Literal Translation. 12mo. cloth, 10*s.*

IV.

THE FIRST FOUR BOOKS OF CELSUS; [illegible]

MR. STOWE, M.R.C.S.

A TOXICOLOGICAL CHART, exhibiting at one view the Symptoms, Treatment, and Mode of Detecting the various Poisons, Mineral, Vegetable, and Animal. To which are added, concise Directions for the Treatment of Suspended Animation. Twelfth Edition, revised. On Sheet, 2*s.*; mounted on Roller, 5*s.*

MR. FRANCIS SUTTON, F.C.S.

A SYSTEMATIC HANDBOOK OF VOLUMETRIC ANALYSIS; or, the Quantitative Estimation of Chemical Substances by Measure. With Engravings. Post 8vo. cloth, 7*s.* 6*d.*

DR. SWAYNE.

OBSTETRIC APHORISMS FOR THE USE OF STUDENTS COMMENCING MIDWIFERY PRACTICE. With Engravings on Wood. Third Edition. Fcap. 8vo. cloth, 3*s.* 6*d.*

MR. TAMPLIN, F.R.C.S.E.

LATERAL CURVATURE OF THE SPINE: its Causes, Nature, and Treatment. 8vo. cloth, 4*s.*

DR. ALEXANDER TAYLOR, F.R.S.E.

THE CLIMATE OF PAU; with a Description of the Watering Places of the Pyrenees, and of the Virtues of their respective Mineral Sources in Disease. Third Edition. Post 8vo. cloth, 7*s.*

DR. ALFRED S. TAYLOR, F.R.S.

I.

A MANUAL OF MEDICAL JURISPRUDENCE. Seventh Edition. Fcap. 8vo. cloth, 12*s.* 6*d.*

II.

ON POISONS, in relation to MEDICAL JURISPRUDENCE AND MEDICINE. Second Edition. Fcap. 8vo. cloth, 12*s.* 6*d.*

MR. TEALE.

ON AMPUTATION BY A LONG AND A SHORT RECTANGULAR FLAP. With Engravings on Wood. 8vo. cloth, 5*s.*

DR. THEOPHILUS THOMPSON, F.R.S.

CLINICAL LECTURES ON PULMONARY CONSUMPTION; with additional Chapters by E. SYMES THOMPSON, M.D. With Plates. 8vo. cloth, 7*s.* 6*d.*

DR. THOMAS.

THE MODERN PRACTICE OF PHYSIC; exhibiting the Symptoms, Causes, Morbid Appearances, and Treatment of the Diseases of all Climates. Eleventh Edition. Revised by ALGERNON FRAMPTON, M.D. 2 vols. 8vo. cloth, 28*s.*

MR. HENRY THOMPSON, F.R.C.S.

I.

STRICTURE OF THE URETHRA; its Pathology and Treatment. The Jacksonian Prize Essay for 1852. With Plates. Second Edition. 8vo. cloth, 10*s.*

II.

THE DISEASES OF THE PROSTATE; their Pathology and Treatment. Comprising a Dissertation "On the Healthy and Morbid Anatomy of the Prostate Gland;" being the Jacksonian Prize Essay for 186 8vo. cloth, 10*s.*

DR. THUDICHUM.

I.

A TREATISE ON THE PATHOLOGY OF THE URINE, Including a complete Guide to its Analysis. With Plates, 8vo. cloth, 14*s.*

II.

A TREATISE ON GALL STONES: their Chemistry, Pathology, and Treatment. With Coloured Plates. 8vo. cloth, 10*s.*

DR. TILT.

I.

ON UTERINE AND OVARIAN INFLAMMATION, AND ON THE PHYSIOLOGY AND DISEASES OF MENSTRUATION. Third Edition. 8vo. cloth, 12*s.*

II.

A HANDBOOK OF UTERINE THERAPEUTICS. Second Edition. Post 8vo. cloth, 6*s.*

III.

THE CHANGE OF LIFE IN HEALTH AND DISEASE: a Practical Treatise on the Nervous and other Affections incidental to Women at the Decline of Life. Second Edition. 8vo. cloth, 6*s.*

DR. GODWIN TIMMS.

CONSUMPTION: its True Nature and Successful Treatment. Crown 8vo. cloth, 10*s.*

DR. ROBERT B. TODD, F.R.S.

I.

CLINICAL LECTURES ON THE PRACTICE OF MEDICINE. *New Edition, in one Volume, Edited by* DR. BEALE, *8vo. cloth,* 18*s.*

II.

ON CERTAIN DISEASES OF THE URINARY ORGANS, AND ON DROPSIES. Fcap. 8vo. cloth, 6*s.*

MR. TOMES, F.R.S.

A MANUAL OF DENTAL SURGERY. With 208 Engravings on Wood. Fcap. 8vo. cloth, 12*s.* 6*d.*

MR. JOSEPH TOYNBEE, F.R.S., F.R.C.S.

THE DISEASES OF THE EAR: THEIR NATURE, DIAGNOSIS, AND TREATMENT. Illustrated with numerous Engravings on Wood. 8vo. cloth, 15*s.*

DR. TUNSTALL, M.D., M.R.C.P.

THE BATH WATERS: their Uses and Effects in the Cure and Relief of various Chronic Diseases. Third Edition. 8vo. cloth, 2*s.* 6*d.*

DR. TURNBULL.

I.

AN INQUIRY INTO THE CURABILITY OF CONSUMPTION.

DR. TWEEDIE, F.R.S.

CONTINUED FEVERS: THEIR DISTINCTIVE CHARACTERS, PATHOLOGY, AND TREATMENT. With Coloured Plates. 8vo. cloth, 12*s.*

VESTIGES OF THE NATURAL HISTORY OF CREATION. Eleventh Edition. Illustrated with 106 Engravings on Wood. 8vo. cloth, 7*s.* 6*d.*

DR. UNDERWOOD.

TREATISE ON THE DISEASES OF CHILDREN. Tenth Edition, with Additions and Corrections by HENRY DAVIES, M.D. 8vo. cloth, 15*s.*

DR. UNGER.

BOTANICAL LETTERS. Translated by Dr. B. PAUL. Numerous Woodcuts. Post 8vo., 2*s.* 6*d.*

MR. WADE, F.R.C.S.

STRICTURE OF THE URETHRA, ITS COMPLICATIONS AND EFFECTS; a Practical Treatise on the Nature and Treatment of those Affections. Fourth Edition. 8vo. cloth, 7*s.* 6*d.*

DR. WALKER, M.B.LOND.

ON DIPHTHERIA AND DIPHTHERITIC DISEASES. Fcap. 8vo. cloth, 3*s.*

DR. WALLER.

ELEMENTS OF PRACTICAL MIDWIFERY; or, Companion to the Lying-in Room. Fourth Edition, with Plates. Fcap. cloth, 4*s.* 6*d.*

MR. HAYNES WALTON, F.R.C.S.

SURGICAL DISEASES OF THE EYE. With Engravings on Wood. Second Edition. 8vo. cloth, 14*s.*

MR. WARING, M.D., F.L.S.

A MANUAL OF PRACTICAL THERAPEUTICS. Second Edition, Revised and Enlarged. Fcap. 8vo. cloth, 12*s.* 6*d.*

DR. WATERS, M.R.C.P.

I.

THE ANATOMY OF THE HUMAN LUNG. The Prize Essay to which the Fothergillian Gold Medal was awarded by the Medical Society of London. Post 8vo. cloth, 6*s.* 6*d.*

II.

RESEARCHES ON THE NATURE, PATHOLOGY, AND TREATMENT OF EMPHYSEMA OF THE LUNGS, AND ITS RELATIONS WITH OTHER DISEASES OF THE CHEST. With Engravings. 8vo. cloth, 5*s.*

DR. EBEN. WATSON, A.M.

ON THE TOPICAL MEDICATION OF THE LARYNX IN CERTAIN DISEASES OF THE RESPIRATORY AND VOCAL ORGANS. 8vo. cloth, 5*s.*

DR. ALLAN WEBB, F.R.C.S.L.

THE SURGEON'S READY RULES FOR OPERATIONS IN SURGERY.

MR. SOELBERG WELLS, M.D., M.R.C.S.

ON LONG, SHORT, AND WEAK SIGHT, and their Treatment by the Scientific Use of Spectacles. Second Edition. With Plates. 8vo. cloth, 6*s.*

MR. T. SPENCER WELLS, F.R.C.S.

I.

DISEASES OF THE OVARIES: THEIR DIAGNOSIS AND TREATMENT. Vol. I. 8vo. cloth, 9*s.*

II.

PRACTICAL OBSERVATIONS ON GOUT AND ITS COMPLICATIONS, and on the Treatment of Joints Stiffened by Gouty Deposits. Foolscap 8vo. cloth, 5*s.*

III.

SCALE OF MEDICINES WITH WHICH MERCHANT VESSELS ARE TO BE FURNISHED, by command of the Privy Council for Trade; With Observations on the Means of Preserving the Health of Seamen, &c. &c. Seventh Thousand. Fcap. 8vo. cloth, 3*s.* 6*d.*

DR. WEST.

LECTURES ON THE DISEASES OF WOMEN. Third Edition. 8vo. cloth, 16*s.*

DR. UVEDALE WEST.

ILLUSTRATIONS OF PUERPERAL DISEASES. Second Edition, enlarged. Post 8vo. cloth, 5*s.*

MR. WHEELER.

HAND-BOOK OF ANATOMY FOR STUDENTS OF THE FINE ARTS. With Engravings on Wood. Fcap. 8vo., 2*s.* 6*d.*

DR. WHITEHEAD, F.R.C.S.

ON THE TRANSMISSION FROM PARENT TO OFFSPRING OF SOME FORMS OF DISEASE, AND OF MORBID TAINTS AND TENDENCIES. Second Edition. 8vo. cloth, 10*s.* 6*d.*

DR. WILLIAMS, F.R.S.

PRINCIPLES OF MEDICINE: An Elementary View of the Causes, Nature, Treatment, Diagnosis, and Prognosis, of Disease. With brief Remarks on Hygienics, or the Preservation of Health. The Third Edition. 8vo. cloth, 15*s.*

THE WIFE'S DOMAIN: the YOUNG COUPLE—the MOTHER—the NURSE—the NURSLING. Post 8vo. cloth, 3*s.* 6*d.*

DR. J. HUME WILLIAMS.

UNSOUNDNESS OF MIND, IN ITS MEDICAL AND LEGAL CONSIDERATIONS. 8vo. cloth, 7*s.* 6*d.*

DR. WILLIAMSON, SURGEON-MAJOR, 64TH REGIMENT.

I.

MILITARY SURGERY. With Plates. 8vo. cloth, 12*s.*

II.

NOTES ON THE WOUNDED FROM THE MUTINY IN INDIA: with a Description of the Preparations of Gunshot Injuries contained in the Museum at Fort Pitt. With Lithographic Plates. 8vo. cloth, 12*s.*

MR. ERASMUS WILSON, F.R.S.

I.

THE ANATOMIST'S VADE-MECUM: A SYSTEM OF HUMAN ANATOMY. With numerous Illustrations on Wood. Eighth Edition. Foolscap 8vo. cloth, 12*s*. 6*d*.

II.

DISEASES OF THE SKIN: A Practical and Theoretical Treatise on the DIAGNOSIS, PATHOLOGY, and TREATMENT OF CUTANEOUS DISEASES. Fifth Edition. 8vo. cloth, 16*s*.

THE SAME WORK; illustrated with finely executed Engravings on Steel, accurately coloured. 8vo. cloth, 34*s*.

III.

HEALTHY SKIN: A Treatise on the Management of the Skin and Hair in relation to Health. Sixth Edition. Foolscap 8vo. 2*s*. 6*d*.

IV.

PORTRAITS OF DISEASES OF THE SKIN. Folio. Fasciculi I. to XII., completing the Work. 20*s*. each. The Entire Work, half morocco, £13.

V.

THE STUDENT'S BOOK OF CUTANEOUS MEDICINE AND DISEASES OF THE SKIN. Part I. Post 8vo. cloth, 5*s*.

VI.

ON SYPHILIS, CONSTITUTIONAL AND HEREDITARY; AND ON SYPHILITIC ERUPTIONS. With Four Coloured Plates. 8vo. cloth, 16*s*.

VII.

A THREE WEEKS' SCAMPER THROUGH THE SPAS OF GERMANY AND BELGIUM, with an Appendix on the Nature and Uses of Mineral Waters. Post 8vo. cloth, 6*s*. 6*d*.

VIII.

THE EASTERN OR TURKISH BATH: its History, Revival in Britain, and Application to the Purposes of Health. Foolscap 8vo., 2*s*.

DR. G. C. WITTSTEIN.

PRACTICAL PHARMACEUTICAL CHEMISTRY: An Explanation of Chemical and Pharmaceutical Processes, with the Methods of Testing the Purity of the Preparations, deduced from Original Experiments. Translated from the Second German Edition, by STEPHEN DARBY. 18mo. cloth, 6*s*.

DR. HENRY G. WRIGHT.

HEADACHES; their Causes and their Cure. Third Edition. Fcap. 8vo. 2*s*. 6*d*.

DR. YEARSLEY, M.D., M.R.C.S.

I.

DEAFNESS PRACTICALLY ILLUSTRATED

CHURCHILL'S SERIES OF MANUALS.

Fcap. 8vo. cloth, 12*s.* 6*d.* each.

"We here give Mr. Churchill public thanks for the positive benefit conferred on the Medical Profession, by the series of beautiful and cheap Manuals which bear his imprint."—*British and Foreign Medical Review.*

AGGREGATE SALE, 187,000 COPIES.

ANATOMY. With numerous Engravings. Eighth Edition. By ERASMUS WILSON, F.R.C.S., F.R.S.

BOTANY. With numerous Engravings. By ROBERT BENTLEY, F.L.S., Professor of Botany, King's College, and to the Pharmaceutical Society.

CHEMISTRY. With numerous Engravings. Ninth Edition. By GEORGE FOWNES, F.R.S., H. BENCE JONES, M.D., F.R.S., and A. W. HOFMANN, F.R.S.

DENTAL SURGERY. With numerous Engravings. By JOHN TOMES, F.R.S.

MATERIA MEDICA. With numerous Engravings. Fourth Edition. By J. FORBES ROYLE, M.D., F.R.S., and FREDERICK W. HEADLAND, M.D., F.L.S.

MEDICAL JURISPRUDENCE. Seventh Edition. By ALFRED SWAINE TAYLOR, M.D., F.R.S.

PRACTICE OF MEDICINE. Second Edition. By G. HILARO BARLOW, M.D., M.A.

The MICROSCOPE and its REVELATIONS. With numerous Plates and Engravings. Third Edition. By W. B. CARPENTER, M.D., F.R.S.

NATURAL PHILOSOPHY. With numerous Engravings. Fifth Edition. By GOLDING BIRD, M.D., M.A., F.R.S., and CHARLES BROOKE, M.B., M.A., F.R.S.

OBSTETRICS. With numerous Engravings. By W. TYLER SMITH, M.D., F.R.C.P.

OPHTHALMIC MEDICINE and SURGERY. With coloured Engravings on Steel, and Illustrations on Wood. Second Edition. By T. WHARTON JONES, F.R.C.S., F.R.S.

PATHOLOGICAL ANATOMY. With numerous Engravings. By C. HANDFIELD JONES, M.B., F.R.C.P., and E. H. SIEVEKING, M.D., F.R.C.P.

PHYSIOLOGY. With numerous Engravings. Fourth Edition. By WILLIAM B. CARPENTER, M.D., F.R.S.

POISONS. Second Edition. By ALFRED SWAINE TAYLOR, M.D., F.R.S.

PRACTICAL ANATOMY. With numerous Engravings. (10*s.* 6*d.*) By CHRISTOPHER HEATH, F.R.C.S.

LANE MEDICAL LIBRARY

To avoid fine, this book should be returned on or before the date last stamped below.

LANE MEDICAL LIBRARY
STANFORD UNIVERSITY
MEDICAL CENTER
STANFORD, CALIF. 94305

L261 Collis, M. H. 11717
C71 On the diagnosis and
1864 treatment of cancer.

NAME	DATE DUE